State School Environmental Health Guidelines





Executive Summary: K-12 School Environmental Health Programs

Development and Implementation Guidelines for

States, Tribes, and Territories

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The U.S. Environmental Protection Agency (EPA)'s mission is to protect human health and the

7 environment. In December 2007, Congress enacted the Energy Independence and Security Act

(EISA). Subtitle E, Section 504 of EISA requires the EPA, in consultation with the Department

of Education, the Department of Energy (DOE), the Centers for Disease Control and Prevention

10 (CDC), the Agency for Toxic Substances and Disease Registry (ATSDR), and the U.S.

Department of Agriculture (USDA), to develop voluntary guidelines to assist states in

establishing and implementing environmental health programs in K-12 schools. Exposure to

environmental hazards in schools can negatively impact the health of students and school staff.

14 Unhealthy school environments can affect attendance, concentration and performance, as well as

lead to expensive, time consuming cleanup and remediation activities.

In carrying out this statutory mandate, EPA, along with its federal partners, developed these

voluntary State K-12 School Environmental Health Program Guidelines. The guidelines are

primarily intended to be used as a resource for the establishment of a state, tribal, or territorial¹

19 K-12 school environmental health program. The practices recommended within the guidelines

20 may be applied, with appropriate adaptation, to a wide range of school related institutions,

21 including child care centers. EPA believes the recommendations in the guidelines represent a set

of best practices for a wide range of settings where children spend time.

23 These guidelines recommend six steps that states and tribes can take to establish key partnerships

24 to maximize resources in their efforts to develop sustainable state and tribal K-12 school

25 environmental health programs. The guidelines summarize the cost savings and health benefits

associated with adopting a school environmental health program; highlight incentives for states

and tribes to work with school districts to encourage the adoption of healthy schools practices;

and provide links to numerous resources to help states and tribes establish, implement and

sustain comprehensive state and tribal K-12 school environmental health programs.

Revised 2/8/2012

¹ For the purposes of these guidelines, the term "states" encompasses states and territories.

30	The State K-12 School Environmental Health Program Guidelines build upon the foundation
31	established by existing federal programs such as EPA's Indoor Air Quality (IAQ) Tools for
32	Schools program and the Centers for Disease Control and Prevention (CDC)'s Coordinated
33	School Health (CSH) strategy to supply states and tribes with additional tools and a framework
34	to create a comprehensive state or tribal program. For example, the guidelines provide resources
35	for states and tribes to address additional school environmental health issues, including
36	contaminants in drinking water, natural day lighting, and acoustics. A model K-12 school
37	environmental health program is included in <u>Appendix A</u> as a resource that states and tribes can
38	provide to schools and school districts to assist their efforts in addressing environmental health
39	issues.
40	Above all, these guidelines are voluntary and not intended to replace regulations, activities,
41	policies, or guidance related to existing school environmental health programs. This document
42	will serve as a useful resource for the development of a state or tribal K-12 school environmental
43	health program. By following the recommendations in the guidelines, states and tribes can help
44	provide a safe and healthy school environment for students and school staff.

K-12 School Environmental Health Programs:

Development and Implementation Guidelines for

States, Tribes, and Territories

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103	K-12 School Environmental Health Programs:
104 105	Development and Implementation Guidelines for States, Tribes, and Territories
106	About the Guidelines
107 108	EPA's Role in State K-12 School Environmental Health Programs
109	The U.S. Environmental Protection Agency (EPA)'s mission is to protect human health and the
110	environment. In December 2007, Congress enacted the Energy Independence and Security Act
111	(EISA). Subtitle E, Section 504 of EISA requires the EPA to develop voluntary guidelines to
112	assist states in establishing and implementing environmental health programs in K-12 schools.
113	Exposure to environmental hazards in schools can negatively impact the health of children and
114	school staff. Unhealthy school environments can affect attendance, concentration and
115	performance, as well as lead to expensive, time consuming cleanup and remediation activities.
446	
116	By establishing a K-12 school environmental health program, states and tribes can promote safe,
117	healthy, and productive school environments for students and school staff, while saving money
118	for local school districts. These guidelines are designed to help states and tribes address
119	environmental health challenges in K-12 schools by:
120	1. Outlining steps states and tribes can take to establish, promote, and sustain successful and
121	affordable state and tribal K-12 school environmental health programs.
122	2. Assisting states and tribes in providing schools and school districts with the tools needed
123	to implement straight-forward, practical, and cost-effective environmental health
124	solutions.
125	3. Sharing best practices and highlighting case studies to demonstrate successful, cost-
126	effective programs that can be implemented by states and tribes.
127	Although these guidelines are voluntary, it is important to note that schools are obligated to
128	comply with relevant environmental regulations, and environmental compliance is an integral
129	part of a state or tribal K-12 school environmental health program. A list of Key Federal EPA

Regulations for K-12 Schools is located on EPA's Schools website and serves as a helpful
reminder of several key environmental requirements. This list does not include all potentially
applicable federal environmental regulations for schools, and does not address state, local or
tribal requirements that may apply and, in some cases, be more stringent. Other organizations
provide resources to help K-12 schools with compliance, such as the National Institute of
Occupational Safety and Health (NIOSH)'s <u>Safety Checklist for Schools</u> and the Environmental
Law Institute's Indoor Environments and Green Buildings Policy Resource Center.

The Importance of Environmental Health in K-12 Schools

On any given day in America, nearly 50 million public school students spend a significant portion of their day in school buildings. When the school environment is unhealthy, students may be exposed to harmful pollutants and chemicals that may cause their health, attendance, and academic performance to suffer. Growing children eat, drink, and breathe more, relative to their body weight, than adults. Therefore, a typical child's exposure to pollutants is higher than that of a typical adult, resulting in an increased susceptibility to pollution. Children's developing

organ systems can also be much more susceptible to the effects of environmental contaminants.

Children's respiratory, immune, nervous, reproductive, and skeletal systems continue to develop throughout childhood, and exposures to environmental contaminants that occur early in life can cause adverse health impacts in children that can have implications well into adulthood.² When addressing children's environmental health in schools, it is also important to note that significant

Symptoms of poor indoor environmental health include:

- Respiratory irritation
- Sore throats
- Drowsiness
- Headaches
- Asthma attacks
- Inability to concentrate

Source: American School Board Journal, June 2007.

disparities exist in the prevalence of chronic health outcomes in children.³ For example, while the prevalence of asthma has been reported to be slightly less than 10% in American children as a whole, in 2009, the prevalence of asthma in African American children living below the poverty line was approximately 18%, or twice the national average. In some communities of Puerto Rican descent, the prevalence of asthma has been reported in excess of 20%.⁴ Children

160	in many of these same communities
161	experience achievement gaps in
162	standardized tests, and increased
163	absenteeism due to health concerns
164	only exacerbates this problem.
165	Numerous asthma triggers can be
166	present in school environments,
167	ranging from mold to constituents in
168	cleaning products and pesticides. It is
169	critically important to consider the
170	potential impact of health disparities in
171	underserved populations when
172	designing effective strategies to
173	maximize student health and
174	achievement in school environments.

approach to improving the health and well-being of all students so they can fully participate and be successful in school. The process involves bringing together school administrators, teachers, other school staff, students, families, and community members to assess health needs; set priorities; and plan, implement, and evaluate all health related activities. CSH integrates health

promotion efforts across eight interrelated components

that already exist to some extent in most schools,

CDC's Coordinated School Health (CSH) strategy is an

THE CENTERS FOR DISEASE CONTROL AND PREVENTION

(CDC)'s COORDINATION SCHOOL HEALTH FRAMEWORK

Health education;

- Physical education;
- Health services;
- Nutrition services;
- Counseling, psychological, and social services;
- Healthy and safe school environments;
- Staff wellness; and
- Family and community involvement.

Source: CDC. School Health Programs: Improving the Health of Our Nation's Youth—At A Glance 2011, Atlanta: CDC; 2011.

All children deserve a safe and healthy environment in which to learn and

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grow. By developing and promoting a state or tribal K-12 school environmental health program,

including:

states and tribes can take an important step toward achieving healthy school environments.

Furthermore, state and tribal K-12 school environmental health programs can save schools and

school districts money, and may contribute to improvements in student performance.

Benefits of a State or Tribal K-12 School Environmental Health Program

Benefits of state and tribal K-12 school environmental health programs can be seen in decreased absenteeism of both students and teachers; ^{5,6} stronger academic performance; ^{7,8,9} and higher scores on standardized tests. ¹⁰ It has been well documented that the environmental conditions within school facilities significantly affect the health of students and staff. Moreover, studies have shown that poor indoor environments in schools have negative impacts on student performance and teacher productivity. ^{4,6,7} Poor indoor environments can result in a variety of symptoms and a decline in students' performance in reasoning, typing, and math. ¹¹ The

189 associations between building-related symptoms and academic performance emphasizes the 190 importance of identifying the actions all levels of government can take to protect and better serve 191 students. In addition to the health benefits, state and tribal K-12 school environmental health programs can 192 help realize cost savings in school districts that are implementing environmental health best 193 practices and related initiatives in their schools. Small investments to address critical 194 195 environmental issues in schools can save schools money by avoiding costly cleanups and remediation related to poor indoor air quality (IAQ), moisture, mold and mildew damage, 196 197 mismanaged chemicals, and pest infestation. Many measures, such as establishing protocols and best practices for school facility managers 198 and occupants, can be implemented with little to no upfront costs, yet can significantly improve 199 the school environment for students and staff. ¹² More information on these important school 200 investments can be found in the Common Environmental Health Issues in K-12 Schools section. 201 State and tribal K-12 school environmental health programs benefit not only schools and school 202 districts, but states and tribes as well. A 2002 study found that the annual costs of 203 environmentally attributable diseases in children ranged from \$48.8 to \$64.8 billion. ¹³ For 204 asthma alone, the cost was estimated to be \$2.0 billion. ¹⁴ For states and tribes, these costs can be 205 206 primarily attributed to health care expenditures, lost school days and lost productivity (e.g., 207 parents having to stay home to care for a sick child). By implementing state and tribal K-12 school environmental health programs, states and tribes can help improve school environments, 208 209 where children spend more time than any other place outside of their homes. This can help to 210 reduce the health care and lost productivity burdens associated with childhood asthma, and can 211 ensure children have healthy environments to learn.

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The Role of States and Tribes in Fostering Environmental Health Programs in K-12 Schools

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States and tribes can help create healthy learning environments in schools by encouraging		
schools and school districts to implement new, or enhance existing, environmental health		
programs. While schools and school districts today face many financial challenges including		
budget cuts and limited resources, modest investments in improving school environments can		
yield cost savings and generate additional resources. States and tribes can use existing resources		
or obtain additional resources through grants and partnerships, to help schools and school		
districts implement a K-12 school environmental health program that helps to:		

- Create healthy environments for students and school staff;
- Save money;

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- Improve school facilities; and
- Improve student performance.
- 227 Some states (e.g., Colorado,
- 228 Connecticut, Kentucky, New
- Hampshire, Rhode Island, Washington,
- and Wisconsin) have already done
- significant work in the area of school
- environmental health. They have
- 233 supported implementation of effective
- 234 integrated pest management (IPM)
- practices, IAQ programs, energy
- efficiency policies and other
- regulations in schools. Case studies
- 238 from existing programs are highlighted
- throughout these guidelines to
- 240 demonstrate best practices that states
- and tribes can follow when establishing
- state and tribal K-12 school environmental health programs.

ENVIRONMENTAL HEALTH HIGHLIGHTS:

A review of five separate studies by Carnegie Mellon University Center for Building Performance (2005) found an average asthma reduction of 38.5% in buildings with improved air quality.

A study of the costs and benefits of high performance schools for Washington State estimated a 15% reduction in absenteeism and a 5% increase in student test scores.

High performance schools use an average of 33% less energy than conventionally designed schools.ⁱⁱ

i) Paladino and Company. (2005). Washington high performance school buildings: report to legislature. A Report on the Washington Sustainable Schools Project, Washington State Board of Education and Office of the Superintendent of Public Instruction ii) Katz, G. (2006). Greening America's Schools Cost and Benefits. Capital E.

243 Defining a State or Tribal K-12 School Environmental Health Program

244	A state or tribal K-12 school
245	environmental health program is
246	established when key state or tribal
247	agencies (e.g., departments of health,
248	education, energy, and environment)
249	work together along with stakeholders
250	(e.g., state officials and school
251	administrators) to develop
252	comprehensive policies, best practices,
253	and standards to help local school
254	districts address environmental health
255	issues in school facilities.
256	Leadership from a state or tribal K-12
257	school environmental health program
258	can provide local school districts with

STATE HIGHLIGHT: Wisconsin Green & Healthy Schools

In 2002, the Wisconsin Department of Natural Resources adopted a model that integrated many existing school environmental health and safety programs as a way to streamline its work with schools. The result was a web-based certification program available to all Wisconsin K-12 schools designed to directly support schools in their quest for a healthy, safe and environmentally-friendly learning environment.

In 2003, the Wisconsin Department of Natural Resources rolled out their Green Schools program. One year later, the agency partnered with the Wisconsin Department of Public Instruction to create the Wisconsin Green and Healthy Schools Program. In the absence of school environmental health legislation/policies at the state level, this voluntary, school-paced program promotes environmental health in schools throughout the state in a comprehensive and accessible manner. As of 2012, there are 140 Wisconsin schools participating in the program.

For more information, visit the <u>Wisconsin Green</u> and Healthy Schools Program website.

school environmental health program can provide local school districts with consistent guidance, resources, tools, and information they need to create safe and healthy school environments that promote high student achievement.

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A successful state or tribal K-12 school

environmental health program should incorporate the following basic elements:

Standards, Guidance and Technical Assistance – A state or tribal K-12 school environmental health program should include policies, standards, and best practices to help school districts adopt and implement environmental health programs. States and tribes can also provide guidance, technical assistance, and tools to help schools and school districts take actions to protect environmental health in their school facilities.

- Steering Committee States and tribes should establish a cross-agency team that works to develop, set the direction, and provide support for environmental health programs in K-12 schools. The steering committee should include members from departments with programs and expertise that can address environmental health issues in schools (e.g., departments of health, education, energy, and the environment) and should have a designated lead office responsible for coordinating efforts across the committee. In addition to relevant agencies at the state and tribal level, other suggested members include:
- state and local officials (e.g., mayors, county executives, etc.);
- local county health departments;
- school administrators (e.g., superintendents and principals);
- Board of Education members:
- local school board representatives;
- school facility/maintenance directors;
- teachers;

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- school nurses; and
- The steering committee could also include other stakeholders like non-profit health and environmental organizations and health care providers.
- Measures to Assess Progress Having measures to assess progress can help sustain state and 288 tribal K-12 school environmental health programs. Collecting information by surveying schools, 289 conducting site visits, regular reporting and/or other methods help benchmark efforts and 290 outcomes across school districts within a state. Some data may already exist (e.g., absenteeism 291 292 rates, energy use). The steering committee can help establish a mechanism for collecting such 293 data, and determine whether their data collection plans need to be vetted by a human subjects 294 research review process (e.g., a state institutional review board). States and tribes can use this information to make key decisions as well as identify strengths, weaknesses, and gaps in the 295 296 overall program.

Resources – States and tribes should identify training opportunities, educational and promotional materials (e.g., factsheets and brochures), technical assistance, financial assistance and resources that are available to promote healthy school environments for schools and school districts. States and tribes should also identify existing state, tribal, or relevant regulations to help support and institutionalize state and tribal K-12 school environmental health programs. Reviewing existing resources can help states and tribes identify gaps that will have an impact on the success of the

program. EPA's Healthy School 303

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Environments website provides a wealth of educational information and tools that can serve as resources for state and tribal K-12 school environmental health programs.

Communication & Outreach –

States and tribes should establish methods for disseminating information to school districts to communicate and gather feedback concerning school environmental health initiatives. It is also important to reach out to potential partners such as universities/colleges, state associations and organizations, and other stakeholders that can provide technical assistance and resources to states and tribes. States and tribes should also encourage

STATE HIGHLIGHT: **Rhode Island**

"As educators, our mission is to ensure that all of our students are prepared for success in college and in challenging careers. To meet this goal, we need to be sure that our schools are safe and supportive places for teaching and learning that use our natural resources wisely. We're proud that Rhode Island has been at the forefront of the "green-school movement," with our 2007 school construction regulations, which set high standards for energy efficiency and resourcefriendly construction. We have implemented these regulations successfully thanks to our many partnerships with educators in our public schools and in higher education, the building and construction industries, food-service industries, nonprofit environmental agencies, and federal agencies such as the U.S. Department of Education and the Environmental Protection Agency. We look forward to an ever-greener future for Rhode Island public education!"

-- Deborah A. Gist, Rhode Island Commissioner of Elementary and Secondary Education

school districts to communicate at the local level with parents, businesses, and grassroots organizations by establishing environmental health teams or committees.

Emergency Management – Environmental health emergencies, (e.g., chemical spills, mold and mildew damage, and accidental exposure to contaminants) can occur in schools and place students and staff at risk. In the event of an emergency, states and tribes should have in place

32/	protocols, procedures, and points of contact for managing environmental emergencies that are
328	accessible to schools, school districts, and the general public.
329	Developing a Successful State or Tribal K-12 School Environmental
330	Health Program
331	Overview
332	States and tribes can best promote effective K-12 school environmental health programs through
333	productive collaboration among state or tribal agencies that address school environment and
334	health issues. Preexisting programs within state or tribal agencies can help support school
335	administrators, teachers, school staff, facility managers, and students in viewing environmental
336	health protection and promotion as an essential part of meeting the school's mission. Successful
337	state and tribal K-12 school environmental health programs will utilize a dynamic process to
338	establish, implement, and evaluate policies, procedures, and practices that strive for continuous
339	improvement in schools. State and tribal K-12 school environmental health programs should not
340	replace regulations, activities, policies, or guidance related to existing school environmental
341	health programs.
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Steps for Establishing a State or Tribal K-12 School Environmental Health Program

Before a state or tribe develops or enhances a K-12 school environmental health program, it is necessary to assess existing efforts, develop a plan, and build an infrastructure that will support and sustain the program. Communication is critical when establishing a state or tribal K-12 school environmental health program. States and tribes should develop a process for communicating with program participants and stakeholders frequently, in every step of the program, to continuously incorporate feedback and identify opportunities to enhance the program. The following steps outline the initial actions that state and tribes can take to identify a lead office and develop a plan for establishing a state or tribal K-12 school environmental health program.

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•Assess Existing Resources & Infrastructure – Identify a lead office within a state or tribal agency and assess existing state and tribal initiatives as well as any existing laws, policies, or regulations that address healthy school environments.

Step 2

• **Determine Capabilities** -- Determine the capabilities of each state or tribal agency to contribute to an effective state or tribal K-12 school environmental health program.

Step 3

• **Develop a Plan** - Develop an initial plan to establish a new, or enhance an existing, state or tribal K-12 school environmental health program based on available resources.

Step 4

•Implement the Program - Work with the lead office and/or the steering committee to ensure the state or tribal program is implementated effectively.

Step 5

•Evaluate the Program - Evaluate the state or tribal program's goals, activities, and milestones to determine whether they need to be revised or expanded to improve the program.

Step 6

•Sustain the Program - Conduct annual program evaluations, make adjustments and communicate successes.

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Assess Existing Resources and Infrastructure – Identify a lead office within a state or tribal agency that can work with other agencies to assess existing state or tribal initiatives as well as any existing laws, policies, or regulations that address healthy school environments.

Existing state and tribal initiatives can serve as a foundation for establishing a state or tribal K-12 school environmental health program. By identifying a lead office to coordinate and, where feasible, expand on existing initiatives, states and tribes can begin to build the infrastructure necessary to maintain a successful state or tribal K-12 school environmental health program.

- 370 The overall infrastructure for a state or
- 371 tribal K-12 school environmental
- 372 health program will vary based on the
- agencies involved, available
- 374 resources, and existing policies.

375 <u>Leadership & Coordination</u>

- 376 Several state or tribal agencies are
- 377 likely to be central to a state or tribal
- 378 K-12 school environmental health
- program, including the departments of
- 380 education, public health, agriculture,
- and environment. Ideally, an office in
- one of these agencies will take the
- lead role in managing the overall
- 384 program. The lead office should be
- responsible for coordinating across
- state or tribal agencies with

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authorities, programs, policies,

STATE AND TRIBAL STEERING COMMITTEE MEMBERS

To ensure better coordination and collaboration on cross cutting issues and initiatives to create an effective state or tribal K-12 school environmental health program, key steering committee members could include the state or tribal:

- Department of Agriculture
- Department of Education
- Department of Energy
- Department of Health
- Department of Transportation
- Environmental Agency
- Environmental Health Directors
- Indian Health Services
- Affiliates of National School Organizations and Associations (e.g., School Nurses, School Administrators, School Business Officials, Parent Teacher Organizations, Teachers Unions, School Facility Directors/Managers)
- Affiliates of Non-Profit Organizations (e.g., Buildings and Grounds Associations, National Education Association)

guidelines, and/or standards affecting school environmental health. The lead office may already be doing work in an area that can easily be expanded to include school environmental health, or may be an office that has additional resources available to commit to the program.

391	Many other departments related to public health, education, and environmental services (e.g.,
392	energy, commerce, and local county health departments) will likely have staff with
393	complementary knowledge, expertise, and skill sets that can be helpful in implementing various
394	aspects of a state or tribal K-12 school environmental health program. The lead office should
395	work with these departments to establish a steering committee, or foster a relationship with an
396	existing school health council, to support the state or tribal program. At a minimum, the lead
397	office should meet with relevant agencies and departments to better understand, identify, and
398	maintain points of contact for existing environmental health initiatives and resources.
399	Organizations outside of state or tribal agencies and departments, such as Cooperative Extension
400	System offices, may also be able to provide expertise on promoting healthy school environments.
401	The Cooperative Extension System is a nationwide educational network in local counties funded
402	by the U.S. Department of Agriculture (USDA) to provide research based information.
403	Cooperative Extension System offices can provide locally relevant information on environmental
404	issues including, but not limited to, radon, mold, and integrated pest management.
405	Another option is the <u>Pediatric Environmental Health Specialty Units</u> (PEHSUs), which provide
406	consultation, usually in the form of verbal advice or guidance via the telephone, on children's
407	environmental health issues. PEHSUs are academically based, typically at university medical
408	centers, and are located across the United States, Canada, and Mexico. PEHSUs form a
409	respected network of experts in children's environmental health that are capable of responding to
410	requests for information throughout North America and can offer advice on prevention,
411	diagnosis, management, and treatment of environmentally related health effects in children. In
412	addition, the PEHSU network can be helpful in interpreting reports or testing results from on-site
413	school environmental health investigations. PEHSUs work with schools as well as health care
414	professionals, parents, community groups, and others to provide information on protecting
415	children from environmental hazards.
416	States and tribes can leverage PEHSUs as a resource for medical information on health
417	symptoms and advice on environmental conditions that affect children's health at schools. The
418	PEHSU network can work in an advisory capacity to assist school districts on specific problems
419	that they may encounter where local resources are not available. While PEHSUs can be

420	contacted on an as needed basis for advice on interpretation and messaging regarding specific			
421	exposure concerns, they can also be valuable in providing education and directing the lead office			
422	and/or steering committee members toward	helpful resources in the planning stages of new		
423	programs.			
424	States, tribes, and/or the steering committee	e can also consult staff in EPA's Regional Offices		
425	regarding information and technical assistance in such areas as children's health, indoor air			
426	quality, integrated pest management, chemi	cal management, asbestos, and radon. EPA Regional		
427	Office contacts are available on EPA's web	site.		
428	Assess Existing Initiatives			
429	When establishing or enhancing a state or to	ribal K-12 school environmental health program, it is		
430	important to identify and assess existing sta	te or tribal initiatives such as IAQ, IPM, green		
431	cleaning, anti-idling, or school chemical cle	canout efforts. The strengths and opportunities		
432	presented by existing school			
433	environmental health initiatives can			
434	serve as the starting point for an overall	STATE HIGHLIGHT: Minnesota State Laws		
435	state or tribal program and can help			
436	determine where to focus initial efforts.	Minnesota's school environmental health program resulted from a change to the		
437	As states and tribes move toward	Minnesota Department of Education Statute (Minn. Stat. 123B.57) requiring all schools		
438	developing a plan for a new or enhanced	applying for health and safety funding to		
439	state or tribal K-12 school	develop an indoor air quality (IAQ) management plan. Since then, over 90% of Minnesota's		
440	environmental health program, this	school districts have implemented an IAQ program.		
441	assessment can serve as a baseline and			
442	help identify potential gaps that may	Minnesota has also adopted several other school-specific laws, including a mercury		
443	need to be addressed.	instrument ban and a school bus anti-idling law. School environmental health efforts are coordinated by the Minnesota Department of		
444	State Law & Policy Review	Health, in cooperation with the Minnesota Department of Education and the Minnesota		
445	To the extent possible, the lead office	Pollution Control Agency.		
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446	should identify and be aware of any	Learn more about Minnesota's school		

impact a state or tribal K-12 school

environmental health program. After assessing existing laws, the lead office is encouraged to conduct a review of the environmental health related laws, policies, and regulations that are currently in place within their state or tribe. The lead office can work with the steering committee to consider how existing regulations, policies, and legislation can be used to support, influence, or affect school facility decisions.

In Connecticut, a number of school health laws have been passed, including anti-idling and diesel emission reduction laws; a green cleaning mandate for schools; an IPM requirement and a prohibition of pesticides on playing fields and school grounds; and a law requiring new schools be constructed to high performance (i.e., energy efficient) standards. Existing laws like these and Connecticut's IAQ law can serve as examples and may help other states and tribes identify potential gaps in their own state or tribal K-12 school environmental health program. Some of the policies that a state or tribal K-12 school environmental health program might adopt include:

- Promoting the establishment of local school environmental management systems that consider student and staff health and safety in all practices related to design, construction, renovation, operations, and maintenance of schools and school grounds.
- Recommending that new and renovated school facilities are designed and built to ensure a sustainable, healthy environment that also conserves energy and saves money.
- Ensuring that environmental factors are considered in school siting decisions as recommended in EPA's School Siting Guidelines.
- Providing support to schools that are identified as most in need of critical infrastructure repair and/or maintenance.
- Promoting energy efficient products and practices.
- Encouraging environmentally safe purchasing policies for school districts.

The process of reviewing state or tribal laws, policies, and regulations should be an on-going effort. The steering committee can ensure the state or tribal K-12 school environmental health program remains relevant, effective, and sustainable by building upon existing laws and/or addressing any gaps identified in the review process.

478	Determine Capabilities - Determine the capabilities of each state or trib	pal
479	Step 2 agency to contribute to an effective state or tribal K-12 school environmental	
480	health program.	
481	Once existing and/or potential support has been identified through an assessment of state or to	riba
482	initiatives, laws, and policies, the next step is to determine the capabilities of each state or trib	oal
483	agency to support a state or tribal K-12 school	
484	environmental health program.	
485	The lead office, working with the steering Basic Elements of a State or Tribal K- 12 School Environmental Health	
486	committee, should determine how each state or Program:	
487	tribal agency may be able to support a • Standards, Guidance and Technical Assistance	
488	coordinated state or tribal K-12 school • Steering Committee	ı
489	environmental health program based on the basic Measures to Assess Progress Resources	
490	program elements. The areas that will likely • Communication & Outreach	
491	require agency support include: • Emergency Management	
492	Coordinating the communication of	_
493	regulations, policies, and recommendations to school administrators and school district	ets;
494	• Developing tools for assessing progress. For example, the Rhode Island Department of	\mathbf{f}
495	Elementary and Secondary Education provides an "operations report card" that school	ls
496	can use to track progress. The operations report cards are also used to evaluate progra	ım
497	success;	
498	• Engaging with state school-based organizations (e.g., parent teacher organizations,	
499	teachers unions) to disseminate information and encourage them to communicate with	l
500	their constituents; and	
501	• Coordinating existing resources and tools that can support the state or tribal program.	Fo
502	example:	
503	 Technical assistance for school districts; 	

community leaders.

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Training for teachers, administrators, nurses, janitors, other school staff, and

o Potential funding for school districts to implement the program; and

Establishing an effective infrastructure to provide ongoing support is an essential step in ensuring that a state or tribal K-12 school environmental health program will be successful. Before attempting implementation, states and tribes should ensure that sufficient infrastructure (e.g., effective lines of communication, management support, adequate resources, and a coordination group or points of contact for existing initiatives) is in place to manage the basic elements of the state or tribal program.



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Develop a Plan - Develop an initial plan to establish a new, or enhance an existing, state or tribal K-12 school environmental health program based on available resources.

Once a lead office has been established, the existing resources and infrastructure have been

identified, and the capabilities of each state or tribal program to support a state or tribal K-12 school environmental health program has been assessed, the lead office should use this information to develop a plan for establishing a new, or enhancing an existing, state or tribal K-12 school environmental health program. A

TRIBAL HIGHLIGHT:

Environmental Education Outreach

• State the program's priorities and goals;

state or tribal program plan should:

- Define the roles and responsibilities of program participants and/or the steering committee;
- Identify or develop policies to promote healthy school environments;
- Describe how each of the basic program elements will be implemented or addressed; and
- Identify how the program will be monitored for success.

TRIBAL HIGHLIGHT: Environmental Education Outreach Program, Northern Arizona University

In Arizona, the Environmental Education Outreach Program (EEOP) was formed as an outgrowth of the Institute for Tribal Leadership to promote environmental careers among K-16 Native American students. Since then, EEOP has placed a stronger focus on school health.

EEOP Program Goals:

- Raise awareness and knowledge of local environmental issues in tribal schools.
- Encourage Native American students to enter environmental careers.

Learn more about **EEOP**.

Goals & Priorities

It is critical for states and tribes to develop goals in the early planning stages of a state or tribal
K-12 school environmental health program to provide focus and measure progress. Using the
information gathered from the initial program assessment and determination of capabilities,
states and tribes can set goals that are clear, measureable, and can be reasonably accomplished
within a specified timeframe. Goal-setting provides a tangible roadmap for the state or tribal
program as it progresses. It is imperative that all individuals involved in the state or tribal K-12
school environmental health program understand the program goals. Examples of general goals
include:

- Establish an environmental management system that school districts across the state can adopt.
- Promote the importance of environmental health in schools and help school districts
 prioritize those schools that could benefit most from an environmental health program
 (e.g., schools with critical maintenance and repair needs, schools with high absentee rates
 and/or above average rates of asthmatic students).
- Ensure that resources (e.g., tools, training, and information) are accessible to help school districts implement local K-12 school environmental health programs.
- Establish policies, guidance, and best practices at the state or tribal level for maintaining school facilities that address:
 - o Routine cleaning and maintenance;
 - o Preventing mold and moisture;
 - o Managing chemicals and environmental contaminants;
 - o Maintaining good ventilation; and
 - o Controlling pests and reducing pesticide use.
- Encourage smart materials selection when building new, or renovating existing, school facilities.
- Provide tools like a <u>Model K-12 School Environmental Health Program</u> that schools and school districts can adopt to help implement their own K-12 school environmental health program.
- To support program goals, a state or tribal K-12 school environmental health program's plan should include metrics to measure. The measures should be specific to the goals, resources, and

needs of each state or tribe. Here are some examples of measures that have been established for existing state K-12 school environmental health initiatives that can also be used as metrics for a state or tribal program:

- The <u>Kentucky Energy Efficiency Program for Schools</u> (KEEPS) measures cost savings based on the current price of electricity, gas, etc. and provides these actual numbers in annual reports to the Kentucky Department of Energy.
- The state of Connecticut collects health statistics from school districts, including: reductions of respiratory health complaints/asthma; reductions in absenteeism; and decreased insurance premiums from workers compensation.
- The state of Rhode Island tracks the number of school districts that are participating in a component of the state program (e.g., EPA IAQ Tools for Schools) or that have implemented the overall state program.

When setting priorities, states and tribes should first ensure that schools and school districts understand and adhere to local, state, tribal, and federal environmental health laws and regulations. States and tribes can then focus on ways to help school districts address school facilities with the greatest needs, or those with immediate health issues and concerns (e.g., extensive water damage, mismanaged chemicals). State and tribal K-12 school environmental health program plans should give special consideration to ways that assistance can be provided to school districts in underserved or low income areas that often have limited resources and face the most challenging school environmental health issues. School districts with funding limitations may need additional resources and information to address environmental health concerns. These school districts may also need additional assistance with identifying issues and solutions that are inexpensive to implement and can have an immediate positive impact on the school environment. States and tribes should reach out to potential partners such as universities/community colleges, state associations and organizations, and other stakeholders that can provide technical assistance and resources to schools and school districts in these areas.

School districts will likely need continuing
support from states and tribes to sustain,
expand, and make on-going improvements to
their local K-12 school environmental health
programs. The goals and objectives of a state
or tribal K-12 school environmental health
program plan should address how the state or
tribe can assist local school districts in
improving environmental health in K-12
schools.

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Roles and Responsibilities of Program

602 <u>Participants and/or the Steering Committee</u>

The roles of all participants in the state or tribal school program should be well established prior to implementing a state or tribal K-12 school environmental health program. Program participants, including the

agencies, should have a plan of action for

lead office and any partnering offices and/or

their roles and have the resources, materials, and information necessary for them to implement the state or tribal program.

612 <u>Strategy for Implementation</u>

Developing a strategy for implementing a state or tribal K-12 school environmental health program is a key component of the program plan. Methods for implementation will vary across states and tribes and will be driven by the unique needs of each situation. The lead office can work with the program participants and/or the steering committee to develop an implementation strategy that:

• Outlines the goals of the program;

STATE HIGHLIGHT: Colorado Connections for Healthy Schools

Colorado Connections for Healthy Schools (CCHS) began in 2003 as part of the Centers for Disease Control and Prevention (CDC)'s Coordinated School Health (CSH) strategy. CCHS's mission is to provide a framework to help build Colorado's infrastructure for coordinated school health. Core CCHS partners include:

- Colorado Department of Education
- Colorado Department of Public Health and the Environment;
- Colorado Legacy Foundation;
- Colorado Health Foundation;
- Center for Research Strategy;
- Creative Media Solutions; and
- RMC Health.

Through grant funding from the Colorado Health Foundation and the Colorado Legacy Foundation, CCHS acknowledges the achievements of schools that scored highest on the Healthy School Champion Scorecard, a self-assessment tool that evaluates a school's performance on the eight components of CSH. In the first year, over 100 Colorado schools submitted scorecards and the top 15 schools received mini-grants.

- Identifies the activities to be 619 **STATE HIGHLIGHT: Washington School Environmental Health and** 620 completed for each goal; **Safety Program** Defines a timeline for taking action 621 Washington's Department of Health School 622 towards each program goal; Environmental Health and Safety Program (SchEH&S) places a strong emphasis on technical assistance, • Lists the resources/funding needed to 623 training, and education. The program provides technical assistance to local health jurisdictions and school staff implement the program; 624 (e.g., risk managers, maintenance and operations staff, Identifies opportunities for outreach 625 custodians, nurses, and administrators) on environmental health and safety issues. For example, and communication with school 626 the Department of Health, the King County Local Hazardous Waste Management Program, state agencies, districts: 627 Educational Service Districts, and the EPA provided Identifies training needed to 628 technical assistance and training on integrated pest management (IPM), safe chemical management and lab 629 implement the program; safety in schools. Defines milestones and measurement 630 The Department of Health SchEH&S program promotes school environmental health and safety through criteria to guide/assess program 631 presentations to, and participation in, various school and 632 progress; and public health associations. The program holds an annual fall workshop that brings local health jurisdictions and 633 Establishes a process for tracking school staff together to network and receive information on school environmental health and safety. The Centers each school's and/or school district's 634 for Disease Control and Prevention (CDC)'s Coordinated progress towards implementing School Health (CSH) strategy has become a primary 635 means of disseminating environmental health environmental health programs. 636 information to Washington state schools. Newsletters, listerys, and the Department of Health SchEH&S website are also used as outreach tools to reach target audiences. Staff Training and Education 637 Learn more about Washington's School Environmental Providing training and education 638 Health and Safety Program. opportunities to state or tribal program 639 participants prior to program implementation is crucial for future success. Training can come 640 641 642
 - from the state or tribe; members of the steering committee; a trainer with expertise in school environmental health; a partnership between governmental and non-governmental organizations; or successful peer trainers. Trainers should be able to speak from experience and communicate effectively with the audience. The <u>PEHSU network</u> can also serve as a resource in identifying existing evidence-based curriculum or presentations to assist with the training process. Training topics could include:

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647 • The importance and benefits of a state or tribal K-12 school environmental health 648 program; Plans for implementing the state or tribal program; 649 • Implementation of a model K-12 school environmental health program (for example, see 650 Appendix A); 651 • Best practices and lessons learned from existing state or tribal K-12 school 652 environmental health programs; and 653 The policies or standards currently in place that support the state or tribal program. 654 655 Educational material and information might include: An overview of school environmental health issues; 656 • Actions that schools and school districts can take to ensure that school environments are 657 healthy; 658 • Information about resources available to schools and school districts through the state or 659 tribal K-12 school environmental health program; 660 • Existing training available to educate school administrators, facility managers and school 661 staff; 662 • Outreach tools and approaches (e.g., public television, events, word of mouth campaigns, 663 peer-to-peer collaboration, and social networking) to increase awareness of the state or 664 tribal program; and 665 Feedback, success stories, and lessons learned. 666 After considering and/or applying these initial steps, states and tribes may want to consider 667 668 working with selected schools and/or school districts to assess and evaluate the strengths,

broadly.

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challenges, and benefits of the state or tribal program before implementing the program more

Maintaining a State or Tribal K-12 School Environmental Health

Program - How to Implement and Sustain a Successful Program

Because every state and tribe is different, each will encounter different environmental health issues, types and levels of resources, and decision-making structures. Continuous communication plays a critical role in implementing and sustaining a successful program. States and tribes should communicate with program participants and stakeholders frequently, in every step of the program, to incorporate feedback and identify opportunities to enhance the program. The following steps outline actions that states and tribes can take to implement and sustain a state or tribal K-12 school environmental health program.



Implement the Program - Work with the lead office and/or the steering committee to ensure the state or tribal program is implemented effectively.

Implementation will depend greatly on the state or tribal program's goals, priorities, and resources. For example, the KEEPS) implementation included developing an introductory packet for school districts with sample school policies and a presentation to introduce KEEPS and its services. The Wisconsin Green and Healthy Schools Program implementation involved working with individual schools to complete a three step certification process. Another example is the implementation of the New Hampshire Partners for Healthy Schools program, which included leveraging partnerships to provide free assessment training, technical assistance, and mentoring to address environmental needs identified by schools.

State and tribal K-12 school environmental health program implementation might incorporate a variety of strategies such as broadly announcing the school environmental health program and making basic information readily available to school districts and the general public (e.g., existing resources, tools, and points of contact for the program). In cases where states and tribes are expanding existing state or tribal K-12 school environmental health programs, implementation can involve sharing information about the new aspects of the program or

providing a centralized source of information pertinent to school environmental health. Effective communication and outreach are instrumental in getting schools, school districts, parents, school staff, and students engaged to support and sustain K-12 school environmental health programs.

STATE HIGHLIGHT: Connecticut Tools for Schools Program

In 1999, representatives from the Connecticut Department of Public Health, EPA Region 1, and the Connecticut Council for Occupational Safety and Health began meeting to develop a comprehensive and coordinated statewide strategy to promote EPA's Tools for Schools Action Kit and Program as a viable, pro-active intervention to address indoor air quality (IAQ) problems in Connecticut schools. Connecticut's work has led to the development of a statewide, multi-agency consortium, the Connecticut School Indoor Environment Resource Team (CSIERT). Since its inception, CSIERT has expanded Connecticut's program to address a variety of environmental health issues.

By implementing the EPA IAQ Tools for Schools program, the state of Connecticut has helped address IAQ issues in over 800 schools. School districts throughout the state have benefitted from implementing this component of a K-12 school environmental health program through:

Improved Health Outcomes within Connecticut School Districts

- An 11% percent reduction in the number of visits to school nurses. (North Haven)
- A decline of 21.2% (from 11,334 to 8,929) in asthma incidents in one year. (Hartford)
- Absenteeism cut by more than half. (Hamden)
- A decrease of 48% in the number of reported cases of respiratory-related illnesses. (North Haven)
- Number of asthma-related health office visits decreased from 463 to 82 over 4 years. (Chester)

Cost Savings for Connecticut School Districts

- Decreased insurance premiums. The average decrease was 3.6 claims. The severity of claims decreased 87%, for a total savings of \$56,705.
- Decreased energy costs with well maintained buildings and equipment.

Positive Public Relations

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- Positive feedback from teachers' unions.
- Positive media coverage.
- Improved faculty and school staff morale.
- Increased community trust.
- Communication and outreach to parents, students, and the general public can include information such as:
- The state or tribal program's goals;
 - Pertinent local, state, tribal, and federal laws and regulations;

- Tools and resources available to help support or participate in the program;
 - Feedback mechanisms (e.g., for administrators, teachers, students, and parents);
 - Points of contact for additional information and technical assistance; and
 - Recognition of successful school districts or school initiatives.

The lead office and/or the steering committee can also reach out to individuals and organizations,

such as public health professionals, parent teacher organizations, schools of public health, and

universities/community colleges to partner with them in support of school districts and their

efforts to create healthy school environments. A strong example of successfully implementing a

state or tribal K-12 school environmental health program can be found in Connecticut's Tools for

715 <u>Schools</u> program.

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Evaluate the Program - Evaluate the state or tribal program's goals, activities, and milestones to determine whether they need to be revised or expanded to improve the program.

After implementing the state or tribal K-12 school environmental health program, it is important for states and tribes to evaluate progress made towards adopting the state or tribal program, as well as the program's goals, activities and milestones, to determine whether they need to be revised or expanded to improve the program. Ideally, school districts and other stakeholders should take part in the evaluation. Evaluations should be conducted on a regular basis and could include:

- Updating the members of the steering committee, as necessary;
- Revisiting and updating the program goals and priorities, as needed;
- Evaluating progress towards milestones and measures;
- Identifying any new funding sources;
- Analyzing how well the strategies for each goal have worked in practice;
- Identifying any success factors and best practices;
- Recognizing any obstacles/challenges encountered when implementing the program;
 - Identifying areas of the program that need improvement/refinement;

733	•	Assessing the training and resources that states and tribes provide to program participants
734		and school districts; and

•	Assessing each school district's progress towards implementing K-12 school
	environmental health programs.

States and tribes should encourage schools and school districts that are addressing environmental health issues to evaluate their progress on a regular basis. Tools such as the Centers for Disease Control and Prevention (CDC)'s <u>School Health Profiles</u> (Profiles) can help states and tribes assess existing health policies and practices in schools. Profiles is a system of surveys conducted every 2 years by education and health agencies among middle and high school principals and lead health education teachers. States and tribes can use Profiles data to monitor what proportion of schools in their jurisdiction have school improvement plans that include healthy and safe school environment objectives; have a school health council, committee, or team; have tobaccofree school policies; and have attempted to minimize asthma triggers in the school environment.

EPA's <u>Healthy Schools Environments Assessment Tool (HealthySEATv2)</u> is another useful tool that states and tribes can encourage school districts to use to measure progress in schools.

HealthySEATv2 is a fully customizable software program designed to help school districts evaluate and manage all of their environmental, safety and health issues.

States and tribes should collaborate with schools and school districts to share successes and lessons learned. States and tribes should establish a mechanism, forum, or process (e.g., newsletters, an annual meeting, participating in existing school board meetings, conference calls, webinars) that allows schools and school districts to share their program evaluations, discuss the results, and provide recommendations to other schools for improvement, if needed. States and tribes can also encourage school districts with successful K-12 school environmental health programs to mentor others in best practices for developing and implementing sustainable program strategies.

Step 6

Sustain the Program – Utilize the results of state or tribal program evaluations to make adjustments and communicate successes.

- The results of the state or tribal program evaluations should be used to make adjustments, as needed, to enhance and sustain a successful state or tribal K-12 school environmental health program. States and tribes can use the results of the program evaluation to:
- Update program training;

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- Revise existing policies and procedures;
- Revise program goals and strategies; and
- Implement activities in new priorityareas.

Sustaining a successful state or tribal K-12 school environmental health program requires demonstrated management support and a consistent commitment over time. One way to encourage participation in, and improvement of, environmental health activities across school districts is to create a recognition and/or incentives program at the state or tribal level. Recognition and

incentives can be established by:

Department of Education's Green Ribbon Schools Program

The U.S. Department of Education's Green Ribbon Schools Program recognizes schools that save energy; reduce costs; feature environmentally sustainable learning spaces; protect health; foster wellness; and offer environmental education to boost academic achievement and community engagement. Beginning in the 2011-2012 school year, states can nominate schools where staff, students, officials, and communities have worked together to produce energy efficient, sustainable, and healthy school environments. State and tribal K-12 school environmental health programs can help schools meet Green Ribbon Schools Program award requirements.

- Recognizing and sharing successful schools district efforts;
 - Nominating schools for national or state awards (e.g., the <u>Department of Education's Green Ribbon Schools Program</u>, <u>Florida's Governor Serve to Preserve Green Schools Award</u>, and the <u>Kentucky Energy Efficiency Program for Schools (KEEPS) Awards and Recognition Program</u>);
 - Creating new, non-financial incentives; or
- Collaborating with independent or not for profit organizations to provide financial
 incentives.
- Above all, states and tribes should share successes with members of the community.
- 787 Communicating progress and success is necessary to maintain support for a state or tribal K-12

- school environmental health program. Newsletters, listservs, and the Governor's State of the State report are just some methods for sharing successes. The lead office should keep documentation and good records of program progress to facilitate communication. Examples of such documentation include:
- Yearly progress reports;

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- Performance measures:
- Absenteeism information; and
- Expenditures and other budgetary data.

Common Environmental Health Issues in K-12 Schools

Creating a healthy school environment begins with adopting operational and maintenance practices that promote an environmentally sustainable and healthy school building. While no two schools are identical, many important environmental issues in schools can be addressed through attention to the following five categories of actions that states and tribes can encourage or incentivize to ensure a healthy and productive school environment for students and school staff:

- Routine cleaning and maintenance;
- Prevent mold and moisture;
- Manage chemicals and environmental contaminants;
- Maintain good ventilation; and
- Control pests and reduce pesticide use.

These five categories are briefly described below. Examples of successful state environmental health programs and available federal tools are provided in the <u>Additional Information and Resources</u> section of this document. Additionally, <u>Appendix A</u> of these guidelines contains a model K-12 school environmental health program that states and tribes can provide to schools and school districts to assist in their efforts to address environmental health issues. The model suggests practical and cost-efficient strategies schools and school districts can adopt to build and

815 sustain clean and healthy school environments that can save money and achieve higher student 816 and school building performance. 817 The information in the guidelines is meant to encourage states and tribes to voluntarily address common environmental health issues in schools. It is important to note that there are a number 818 of environmental regulations with which schools must comply. Children's exposure to 819 chemicals and contaminants could cause adverse health problems and aggravate existing health 820 821 conditions, and exposures to asbestos fibers, for example, can be far higher indoors than outside. 822 Deteriorating lead-based paint, polychlorinated biphenyl (PCB)-containing building materials 823 such as <u>caulk</u> and <u>florescent light ballasts</u>, and <u>asbestos</u> may create health issues in older school 824 buildings as well. Environmental compliance is an integral part of a K-12 school environmental 825 health program. A list of Key Federal EPA Regulations for K-12 Schools is located on EPA's 826 schools website as a helpful tool to remind schools and school districts of their key 827 environmental requirements. This list does not include all potentially applicable federal 828 environmental regulations for schools, and does not address additional, and sometimes more stringent, state, local and tribal environmental regulations that may also apply to K-12 schools. 829 830 Routine Cleaning and Maintenance 831 School environments are healthier when they are kept clean. Unsanitary conditions attract 832 insects and vermin, and irritants and allergens found in dust and dirt can have a negative impact 833 on student health and performance. Indoor air pollutants and allergens related to poor cleaning 834 practices contribute to increased respiratory and asthma symptoms among children and adults.⁴ 835 According to the CDC, asthma is one of the leading causes of school absenteeism, resulting in 836 nearly 14 million missed school days nationwide. 15 837 A single custodial worker uses, on average, 194 pounds of chemicals each year. ¹⁶ While 838 839 effective cleaning products and practices are central to creating a clean and healthy school environment, some chemicals in cleaning products themselves can trigger asthma and adverse 840 health symptoms, such as respiratory irritation, sore throats, and watery eyes. 17 States and tribes 841 should encourage or incentivize schools and school districts to switch to less toxic chemicals and 842 environmentally safe cleaning practices as these provide an opportunity to reduce chemical 843

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exposure in school environments. Green cleaning products or environmentally preferred

products have been shown to be as effective as conventional cleaning products, and less hazardous. Choosing less hazardous cleaning products that have positive environmental attributes (e.g., biodegradability, low toxicity, low volatile organic compound (VOC) content, reduced packaging, and low life cycle energy use) and taking steps to reduce exposure can minimize harmful impacts to custodial workers, students and school staff, as well as to the environment. The state of New York has developed a green cleaning program and a preferred green cleaning purchase list that can be used as a model to help states and tribes make responsible choices in cleaning products and practices. Less hazardous cleaning products improve indoor air quality (IAQ) and reduce water and ambient air pollution while ensuring the effectiveness of cleaning to remove biological and other contaminants from the building's interior.

Maintaining the school facility is just as important as routine cleaning to ensure a healthy environment for students and school staff. States and tribes should encourage schools and school districts to establish a regular inspection program that identifies problems before they impact the school environment and the occupants' health. School building maintenance protocols should address the entire building envelope: the foundation, exterior and interior walls, windows and doors, and roofing.¹⁸

Prevent Mold and Moisture

The key to mold control is moisture control. Indoor mold has been identified as one of the major indoor environmental triggers for asthma and allergic reactions. Keeping indoor environments dry is essential for maintaining mold-free schools. The presence of moisture within building structures stimulates the growth of molds and other biological contaminants. Damp schools also provide a nurturing environment for mites, roaches, and rodents, which are associated with asthma, allergies and other respiratory diseases.

Individual school districts have incurred costs from \$200,000 to as much as \$13 million for remediating mold and mildew damage. The upfront costs of routine preventative maintenance can avoid the need for costly mold remediation, as well as the potential legal

liability posed by the presence of mold and mildew and its health risk for students and school staff.¹⁶

Concern about indoor exposure to mold has been increasing as the public becomes aware that exposure to mold can cause a variety of health effects and symptoms, including allergic reactions. EPA has developed mold remediation guidance that states and tribes can use as the foundation for developing

policies on moisture and mold, and to help school districts maintain dry and healthy school environments. States and tribes should encourage school districts to establish a mold prevention and remediation plan that includes conducting routine moisture inspections; maintaining indoor humidity levels between 30-50%; addressing moisture problems

promptly; and ensuring wet

areas are dried within 24-48

hours.

Effects of Chemical Exposure

On October 2, 2003, Washington, D.C.'s Fire Department Hazmat Unit responded to an emergency at Ballou High School. A student had obtained 250 milliliters of elemental mercury from a science laboratory and had sold some of it to other students. This incident led to an exhaustive mercury spill clean-up.

Contamination did not stop at the school. Students unknowingly carried mercury on shoes and clothing through the streets, onto city and school buses, and into their homes. Eleven homes and one common area were found to be contaminated and about 16 families were displaced for a month.

As a result of the mercury spill, Ballou High School was closed for 35 days and over 200 homes were tested for mercury contamination. Total cleanup costs were about \$1,500,000.

Learn more about the Ballou High School mercury spill.

Manage Chemicals and Environmental Contaminants

It is important for schools to provide a safe and healthy learning environment for students by preventing exposure to chemicals and environmental contaminants that pose health risks to students, faculty, school staff, and the environment. Schools use chemicals in classrooms, science laboratories, and vocational shops as well as in facility maintenance. Many of these chemicals are toxic to humans and/or the environment and should be used, handled, and disposed of in a manner that protects students and school staff from accidents and risk of exposure.

901 Chemical exposures and spills can be very costly to a school; however, there are steps that can be 902 taken to ensure schools use, handle, and dispose of chemicals in a safe manner. States and tribes 903 can provide information and establish policies to help schools properly manage chemicals, as 904 well as establish protocols for preventing, addressing, and responding to chemical incidents in schools. 905 Tools developed through EPA's Schools Chemical Cleanout Campaign (SC3) provide valuable 906 907 resources that can help schools responsibly manage their chemicals. States and tribes can 908 incorporate these and other chemical management resources into their state or tribal K-12 school 909 environmental health programs and emergency management plans. Additionally, states and tribes 910 should consider establishing policies for purchasing low-emitting and low-toxicity products; 911 conducting regular building walk-through inspections; testing for lead and other contaminants in drinking water; testing and mitigating for radon; implementing smoke-free policies; and 912 913 establishing an anti-idling school bus policy. Maintain Good Ventilation 914 Indoor air pollution has been demonstrated to have an adverse impact on public health. Poor 915 IAQ can cause short- and long-term health problems such as coughing, eye irritation, headaches, 916 asthma episodes, allergic reactions, and in rare cases, life threatening conditions such as 917 918 respiratory distress. Improperly managed ventilation systems can contribute to airborne mold, infectious diseases, and carbon monoxide poisoning. Poor IAQ can also impact the comfort and 919 health of students and school staff, which can in turn affect concentration, attendance, and 920 classroom performance. 921 922 Good IAQ can help ensure a healthier and higher performance learning environment for students and school staff, and proper maintenance of ventilation equipment plays a big role in the quality 923 924 of the indoor air. Adequate ventilation with outdoor air is a key component for good IAQ in 925 schools and classrooms, and may contribute to mitigating the effects of radon and vapor 926 intrusion. Indoor air may be two to five times more polluted than outdoor air and there are large 927 populations of children who may be more susceptible to indoor pollutants than the general population. Also, the high occupant densities of schools and classrooms often makes it 928 929 challenging for building designers to incorporate ventilation systems that provide adequate

outdoor air (in compliance with the industry's ventilation standard, <u>ASHRAE 62.1-2010</u>) while providing buildings with good IAQ and minimizing costs. Increased outdoor air ventilation rates can result in high heating and air-conditioning costs, and may contribute to indoor moisture problems in some geographic locations. Excessive indoor moisture can lead to mold growth,

which is often a significant IAQ problem.

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Good IAQ can be achieved through cost-effective solutions, which can prevent problems that are hazardous to health and expensive for schools to remedy. EPA's IAQ Tools for Schools program is a comprehensive resource that states and tribes can encourage school districts to use to maintain a healthy environment in school buildings. The IAQ Tools for Schools program can help school districts identify, correct, and prevent IAQ problems. The IAQ Tools for Schools Action Kit has been implemented in thousands of schools across the country. States and tribes can use the tools and resources offered by EPA's IAQ Tools for Schools program as the basis for statewide policies on IAQ in schools, and to assist local communities in promoting healthy school environments.

Effects of Indoor Air Quality

Fairgrounds Junior High School in Nashua, New Hampshire underwent renovations between 1996 and 1997 to correct IAQ problems identified by the local health department. In May 1997, teachers came forward with IAQ-related complaints. To correct these problems, school facilities staff adjusted the energy management system shortly before school closed for the summer. However, when the school reopened in early September, complaints about temperature, discomfort, and odors resurfaced, along with complaints of dizziness and tingling sensations in the extremities.

School officials became concerned that broader IAQ problems existed and decided to pilot the IAQ Tools for Schools program at Fairgrounds Junior High School. The school principal and two teachers presented the program at a staff meeting and recruited volunteers to form an IAQ team. The team distributed a health survey to teachers and staff at a faculty meeting and requested information on health problems experienced during work hours.

The IAQ Tools for Schools Action Kit, the health survey, and formal investigations helped the team to identify and resolve the problems. Since Fairgrounds Junior High School implemented the program in 1997, several more schools in the Nashua School District have adopted the IAQ Tools for Schools program.

Control Pests and Reduce Pesticide Use

Droppings or body parts from cockroaches, rodents and other pests can trigger asthma and cause allergic reactions. Pests can also transmit infectious diseases. Pesticides are commonly used to address pest problems; however, misusing pesticides can expose students, teachers, and school staff to neurotoxins and other potentially harmful chemicals. Pesticides pose risks to human health and the environment when people do not follow directions on product labels or if they use products irresponsibly (e.g., using pesticides when they are not really needed, using the incorrect posticide, or applying more of a posticide.

966 pesticide, or applying more of a pesticide

than is needed). Even minimum risk pesticides can have unintended consequences if not used correctly, and may be ineffective in treating pest

problems. Children may be especially

972 sensitive to health risks posed by

pesticides. Their internal organs are stilldeveloping, and they perform more hand-

975 to-mouth and hand-to-floor behavior than

976 adults.

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Integrated Pest Management (IPM) is an effective and environmentally sensitive approach to pest management that uses current, comprehensive information on the life cycles of pests and their

STATE HIGHLIGHT: Monroe County, Indiana

"Monroe County, Indiana achieved a 92 percent reduction in pesticide use, enabling them to direct their cost savings to hire a district-wide coordinator to oversee pest management in the schools. As a result, Monroe County was awarded the Governor's Award for Pollution Prevention. The Monroe County Integrated Pest Management (IPM) Program has now evolved into the Monroe School IPM Model. By using this model, the emphasis is placed on minimizing the use of broad spectrum chemicals, and on maximizing the use of sanitation, biological controls and selective methods of application."-- Monroe County Community **Schools Corporation, Indiana**

Learn more about the Monroe School IPM Model.

interactions with the environment, in combination with available pest control methods, to manage pests economically, and with the least possible risk to people, property, and the environment. IPM practices can effectively control pests in schools, while reducing pesticide use by as much as 70-90%. IPM is a safer and sometimes less costly option for effective pest management in school facilities. IPM programs employ continual pest monitoring and exclusion while also reducing sources of food, water and shelter for pests in school buildings and grounds. A state or tribal IPM program should take advantage of all pest management strategies, including

the judicious and careful use of pesticides when necessary. EPA's IPM in Schools website and other state IPM programs (e.g., California and Florida) are good resources for states and tribes to use as guidance in developing standards for IPM in schools.

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Additional Opportunities for Promoting Environmental Health in School **Facilities**

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This section presents general information that states and tribes can provide to schools and school districts as they plan and undertake major construction and renovation projects.

Recommendations for improving classroom comfort (e.g., lighting, acoustics, ventilation, and temperature control) and becoming more energy and water efficient are also highlighted.

New Construction and Renovation Projects

New construction and renovation projects are good opportunities for states and tribes to

encourage schools and school districts to address areas of concern identified under the five key components of K-12 school environmental health, as well as improve classroom comfort and become more energy and water efficient. Incorporating high-

performance elements in school buildings can result in cost savings and demonstrate stewardship of taxpayer dollars. By adopting

1011 high performance practices, school districts can

lower their operating costs by up to 30

percent. 22,23 1013

FIVE COMPONENTS OF K-12 SCHOOL ENVIRONMENTAL HEALTH

- Routine cleaning and maintenance;
- 2. Prevent mold and moisture:
- Manage chemicals and environmental contaminants;
- 4. Maintain good ventilation; and
- 5. Control pests and reduce pesticide

States and tribes should strongly encourage schools and school districts to address environmental health concerns when planning renovation and construction activities. Federal, state, local and tribal regulations must be considered when schools and school districts are beginning the siting and/or design stage of school renovation and construction. There are a number of environmental

regulations related to removal of asbestos and PCB-containing fluorescent light ballasts that are likely to apply. States and tribes can provide assistance to ensure proper adherence to federal, state, local and tribal environmental regulations that are critical to protecting the health and wellbeing of children and school staff. A list of Key Federal EPA Regulations for K-12 Schools is located on EPA's schools website as a helpful tool to remind K-12 schools of their key environmental requirements. This list does not include all potentially applicable federal environmental regulations at schools, and does not address additional, and sometimes more stringent, state, local and tribal environmental regulations that may also apply to K-12 schools. Renovations should occur while students, school staff, and other unprotected occupants are vacated from the building(s) to avoid exposure to toxic substances. Children's exposure to chemicals and environmental contaminants due to new construction and renovation activities present unique environmental health concerns. Exposures to asbestos fibers, formaldehyde, radon gas, and carbon monoxide could cause adverse health problems and aggravate existing health conditions. Furthermore, deteriorating lead-based paint, PCB-containing building materials and asbestos may create health issues in older school buildings. Potent chemical asthmagens/sensitizers, including isocyanate-containing products, are used in school renovations (e.g., spray foam insulation, roofing, floor coatings, caulking materials, tracks, gymnasium coatings, spray adhesives) and other applications, such as theater and art materials. Poor IAQ can impact the health of students and school staff, as well as affect concentration, attendance, and classroom performance. IAQ is a critical aspect to consider when designing and maintaining school facilities. IAQ Design Tools for Schools provides detailed guidance and links to additional resources to help design healthy new schools, as well as repair, renovate and maintain existing facilities. Though its primary focus is IAQ, it is also intended to encourage schools and school districts to embrace the concept of designing high performance schools; that is, adopting an integrated, "whole building" approach to addressing a myriad of important — and sometimes competing — priorities (e.g., energy efficiency, IAQ, day lighting, materials efficiency and safety), and doing so in the context of tight budgets and limited staff. EPA's voluntary School Siting Guidelines can also help school districts, local education agencies (LEAs), and community members evaluate environmental factors to make the best possible school siting decisions when selecting a location for a new school. Visit the EPA School Siting

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Guidelines website to learn more about the siting guidelines, as well as view links to relevant 1048 resources and additional information. 1049 Enhancing Classroom Comfort 1050 1051 States and tribes can help enhance learning environments in schools by promoting proper design, 1052 maintenance and operation of lighting systems, ventilation systems, thermal control systems, and acoustics. Environmental distractions (e.g., poor lighting, glare, poorly controlled temperature 1053 and humidity, and excessive ambient noise or poor acoustics) can affect the health, attention, and 1054 performance of students and school staff. Existing schools, schools being renovated and new 1055 1056 schools can be enhanced by including design elements that maximize comfort and safety and allow building users to focus on education. Organizations like the US Green Building Council -1057 Center for Green Schools and the National Green Schools Coalition provide tools to help schools 1058 address the unique infrastructure of the school environment while having a positive impact on 1059 1060 student health and comfort, school operational costs, and the environment. 1061 Energy and Water Efficiency 1062 States and tribes spend more money on energy at schools than any other expense except 1063 personnel. Existing schools can improve energy efficiency in daily operations and maintenance, 1064 as well as reduce energy bills by 5% to 20% without significant capital investment. 24 One way 1065 school districts can use the savings from lower energy bills is to pay for building upgrades that 1066 enhance the health and quality of the students' learning environment. 1067 1068 The National Commission on Teaching and America's Future estimates the cost of teacher turnover in public schools at more than \$7.3 billion per year. 25 A Deloitte and Lockwood poll of 1069 1070 organizations that have undergone green (i.e., environmentally preferred) retrofitting projects reports that in addition to reducing costs, schools report a greater ability to attract and retain 1071 staff, ²⁶ which is an important factor in improving school performance. ²⁷ In the same poll, green 1072 1073 (i.e., environmentally preferred) retrofits were reported to improve health, productivity and attendance.²³ 1074

Through ENERGY STAR, states and tribes have access to a wealth of resources for K-12 school districts interested in reducing their utility bills, improving their energy performance, receiving recognition, and educating their students. ENERGY STAR certified schools use 35% less energy than typical buildings and emit 35% less carbon dioxide.

STATE HIGHLIGHT: Kentucky Energy Efficiency Program for Schools (KEEPS)

The Kentucky Energy Efficiency Program for Schools (KEEPS) was the brainchild of the Kentucky Department of Energy, and began as a pilot program in 2006 with six school districts. In 2008, Kentucky House Bill 2 (section 16) made it a requirement that all school districts participate in KEEPS by January 2010. Under the mandate, schools are required to adopt a school board approved energy policy and submit a copy of their energy management policy to the state. The KEEPS program follows the 7-step framework developed by ENERGY STAR.

Since the mandate, all 174 school districts in Kentucky have adopted a school-board approved energy policy. The State of Kentucky was later awarded Energy Star Partner of the Year for program implementation.

"We learned that initially you can have lots of savings due to facilities modifications, etc., and utility bill analysis (huge savings of 100,000s of dollars). However, to have long term year-to-year sustainable results, you have to have behavior modification, good maintenance practices, and culture change."-- Kentucky Energy Efficiency Program for Schools (KEEPS)

Learn more about **KEEPS**.

Another way states and tribes can encourage schools and school districts to save money and conserve resources is to promote water efficiency. Schools use a tremendous amount of water every day in a variety of applications, including:

- Heating and cooling systems;
- Restrooms;

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- Drinking water fountains;
- 1085 Locker rooms:
- 1086 Cafeterias:
- Laboratories and classrooms; and
- Outdoor playing fields and lawns.

States and tribes can utilize resources such as EPA's <u>WaterSense</u> program to help schools and school districts make more water efficient choices. <u>WaterSense</u> seeks to reduce water use and increase public awareness about water efficiency through an easy-to-identify label for water-efficient products. The <u>WaterSense label</u> is backed by strict criteria and independent certification. When states and tribes adopt and promote water-efficient products, services, and practices, schools and school districts can greatly reduce annual water and energy costs, as well as help reduce the stress on natural resources.

Summary

A state or tribal K-12 school environmental health program should be a dynamic program which evolves to meet the environmental health needs of schools and school districts. States and tribes should continuously communicate with other state or tribal government agencies, school districts, external stakeholders, and the public about the program and its successes. States and tribes should evaluate and adjust the program so that it supports schools' and school districts' efforts to create healthy learning and working environments for students and school staff.

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Disclaimer for External Websites

Any NON-FEDERAL websites or web links included in this document are provided for informational purposes only. US EPA does not endorse any of these entities or their services. In addition, US EPA does not guarantee that any linked, external websites referenced in this document comply with section 508 (accessibility requirements) of the Rehabilitation Act.

Children's Health Protection and Programs				
EPA's Healthy School Environments website				
<u>nart</u>				
Environmental Law Institute's <u>Indoor Environments and Green Buildings Policy Resource</u> <u>Center</u>				

EPA's Asbestos in Schools website 1154 1155 EPA's Drinking Water in Schools and Child Care Facilities website EPA Guidance for Indoor Air Quality in Large Buildings website 1156 1157 EPA's Indoor Air Quality Design Tools for Schools website EPA's Indoor Air Quality Design Tools for Schools: High Performance Schools website 1158 EPA's Indoor Air Quality Tools for Schools website 1159 EPA's Indoor Air Quality Tools for Schools Action Kit 1160 EPA's Indoor Air Quality Tools for Schools Case Studies website 1161 EPA's Indoor Air Quality Tools for Schools Framework for Effective IAO Management 1162 EPA's Integrated Pest Management in Schools website 1163 EPA's Lead in Paint, Dust and Soil website 1164 EPA's Mercury in Schools Case Studies 1165 EPA's Mold Remediation Guidance 1166 EPA's National Idle-Reduction Campaign website 1167 EPA's PCB in Caulk Schools Fact Sheet 1168 EPA's Proper Maintenance, Removal, and Disposal of PCB-Containing Fluorescent Light 1169 Ballasts: A Guide for School Administrators and Maintenance Personnel 1170 EPA's Radon website 1171 EPA's Reduce Exposure to Tobacco Smoke website 1172 EPA's Schools Chemical Cleanout Campaign (SC3) website 1173 1174 ATSDR's ToxFAQs 1175 1176 California's School IPM website 1177 Connecticut's Indoor Air Quality Law 1178 Florida's School IPM website 1179 Monroe County, Indiana School IPM Model 1180 Washington D.C.'s Ballou High School Mercury Spill Case Study 1181 1182 **National or State Awards** 1183 1184 Department of Education's Green Ribbon Schools Program 1185 1186 1187 Florida's Governor Serve to Preserve Green Schools Award Kentucky Energy Efficiency Program for School Awards and Recognition Program 1188 1189 Other Resources 1190 1191 1192 EPA's Greening Your Purchase of Cleaning Products: A Guide for Federal Purchasers 1193 EPA's Healthy School Environment Resources Financing website **EPA Regional Office Contacts** 1194 EPA's School Siting Guidelines website 1195 1196 EPA's WaterSense website 1197 EPA's WaterSense label 1198

Connecticut's **Tools for Schools Program**

1200	Kentucky Energy Efficiency Program for Schools (KEEPS)						
1201	Lakota School District's Energy Efficiency Facilities Upgrade Case Study						
1202	Minnesota Department of Health School Related Initiatives and Programs						
1203	Minnesota Statute 123B.57 Capital Expenditure; Health and Safety						
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1205	New York's Green Cleaning Program						
1206	Northern Arizona University's Environmental Education Outreach Program (EEOP)						
1207	Rhode Island Department of Elementary and Secondary Education website						
1208	Washington's School Environmental Health and Safety Program						
1209	Wisconsin Green and Healthy Schools Program						
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1211	ASHRAE Standard 62.1-2010: Ventilation for Acceptable Indoor Air Quality						
1212	Energy Independence & Security Act of 2007						
1213	National Green Schools Coalition						
1214	Pediatric Environmental Health Specialty Units (PEHSUs)						
1215	Safe and Healthy School Environments, edited by Frumkin, H., Geller, R., and Rubin, I.L., with						
1216	Nodvin, J. Oxford University Press 2006.						
1217	<u>USDA Cooperative Extension Offices</u> for educational resources						
1218	US Green Building Council - <u>Center for Green Schools</u>						
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Model K-12 School Environmental Health Program:

Recommended Activities to Promote Healthy School Environments in Schools and School Districts

What is a School Environmental Health Program?

A school environmental health program is a holistic, strategic plan for protecting the health of students and school staff by addressing environmental health issues commonly encountered on school campuses. Ideally, K-12 school environmental health programs promote the establishment of an environmental management system that considers impacts on student and school staff health and safety, as well as impacts on the environment, in all practices related to design, construction, renovation, operations, and maintenance of schools and school grounds.

While no two schools are identical, there are five broad components of environmental health issues that schools need to address to ensure that school environments are healthy and promote high achievement by students and school staff. These five components are:

- Routine Cleaning and Maintenance;
- Prevent Mold and Moisture;

- Manage Chemicals and Environmental Contaminants;
- Maintain Good Ventilation: and
 - Control Pests and Reduce Pesticide Use.

In addition to improving the school's physical environment and minimizing potential health risks, K-12 school environmental health programs help local communities, school districts and schools make healthy, safe, and cost effective choices that address each school's environmental health priorities. Some of the benefits to schools and school districts include:

- Decreased rates of absenteeism for students and teachers;
- Stronger student academic performance and participation in the classroom;
- Greater teacher retention and job satisfaction; and
- Cost savings through energy and resource conservation, and improved facility maintenance.

The Environmental Protection Agency (EPA)'s <u>Indoor Air Quality (IAQ) Tools for Schools program</u> and the Centers for Disease Control and Prevention (CDC)'s <u>Coordinated School Health (CSH) strategy</u> are two established programs that offer frameworks for schools and school districts to use when adopting a K-12 school environmental health program. The text boxes on pages 49, 50, and 51 introduce the IAQ Tools for Schools program and the CSH strategy frameworks.

K-12 school environmental health programs should be dynamic and need to evolve as schools and school districts identify new priorities, set new goals, and balance existing resources.

EPA'S IAQ TOOLS FOR SCHOOLS FRAMEWORK FOR A K-12 SCHOOL ENVIRONMENTAL HEALTH PROGRAM

Indoor Air Quality (IAQ) Tools for Schools is a flexible, comprehensive resource for environmental health in school buildings. The district-wide approach for implementing the IAQ Tools for Schools Framework for Effective School IAQ Management has become the standard for schools that are looking to initiate proactive IAQ practices in their school system. Approximately 1/3 of U.S. schools are currently using the IAQ Tools for Schools Framework as the basis for their K-12 indoor air quality program (CDC, SHPPS 2006). The IAQ Tools for Schools approach provides strategies and a robust suite of tools to help schools identify, correct and prevent a wide range of environmental health and safety risks, and to put in place a sustainable system to institutionalize a successful program at the district or school level. The Framework provides a common language to describe the drivers of IAQ program success; detailed guidance on the proven strategies, organizational approaches, and leadership styles that are fundamental to program effectiveness; and a clear vision of the pathway to school IAQ excellence. Its highly flexible and adaptable structure allows any school or district, regardless of location, size, budget or condition, to use the Framework to launch, reinvigorate and sustain an effective IAQ management program.



Figure 1: IAQ Tools for Schools Six Key Drivers

The core elements of the IAQ Tools for Schools Framework are the Key Drivers and the Technical Solutions (Figures 1 and 2). The Key Drivers are the essential functions of effective and enduring IAQ management programs: Organize, Communicate, Assess, Plan, Act, and Evaluate. The Technical Solutions define the most common issues that schools need to address to effectively manage IAQ risks: Quality HVAC, Control of Moisture and Mold, Integrated Pest Management, Effective Cleaning and Maintenance, Smart Materials Selection, and Aggressive Source Control. *(continued)*

EPA'S IAQ TOOLS FOR SCHOOLS FRAMEWORK FOR A K-12 SCHOOL ENVIRONMENTAL HEALTH PROGRAM (CONTINUED) The Framework for Effective School IAQ Management: Six Technical Solutions 🜟 Quality HVAC ACTION KIT Inspect HVAC systems regularly · Establish a maintenance plan HVAC Change filters regularly and ensure condensate pans are draining Provide outdoor air ventilation according to ASHRAE Standard or local code Moisture/Mold Clean air supply diffusers, return registers, and outside air intakes **IPM** · Keep unit ventilators clear of books, papers, and other items Cleaning & Maintenance 🌟 Control of Moisture/Mold Conduct routine moisture inspections Materials Selection Establish mold prevention and remediation plan Source Control . Maintain indoor humidity levels between 30% and 60% Address moisture problems promptly . Dry wet areas within 24-48 hours 🌟 Strong Integrated Pest Management (IPM) Inspect and monitor for pests Establish an IPM plan Aggressive Source Control Use spot treatments and baits **Smart Materials Selection** Conduct regular building walkthrough · Communicate with occupants prior to pesticide use · Maintain products inventory inspections Mark indoor and outdoor areas treated with pesticides Develop low-emitting products purchasing and use policies . Test for radon; mitigate if necessary Implement a hazardous materials plan (use, label, storage and disposal) 🌟 Effective Cleaning & Maintenance · Use only formaldehyde-free materials Conduct routine inspections of school environment Use only low-toxicity and low-emitting paint Select products based on product Select products based on product Implement Smoke-Free policies · Develop a preventative maintenance plan Train cleaning/maintenance staff on protocols Ensure material safety data sheets (MSDS) are available to staff Use least toxic cleaners possible (only those approved by the district) Establish an anti-idling school bus policy Use walk-off mats at building entrances . Clean and remove dust with damp cloth · Vacuum using high-efficiency filters · Conduct pollutant-releasing activities when

Figure 2: IAQ Tools for Schools Six Technical Solutions

The Model K-12 School Environmental Health Program builds on the foundation established by the IAQ Tools for Schools Framework and recommends that schools and school districts address additional school environmental health issues including contaminants in drinking water; natural day lighting; and acoustics.

School districts already implementing IAQ Tools for Schools, as well as districts just beginning to think about developing a comprehensive school environmental health program, will find the IAQ Tools for Schools platform an effective model on which to build.

Learn more about the IAQ Tools for Schools Framework, tools and resources.

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CENTER FOR DISEASE CONTROL AND PREVENTION (CDC)'S COORDINATED SCHOOL HEALTH (CSH) STRATEGIES FOR IMPLEMENTING A COORDINATED APPROACH TO IMPROVE SCHOOL HEALTH POLICIES AND PROGRAMS

Secure and maintain administrative support and commitment.

School administrators can support a coordinated approach to school health by incorporating health in the district's or school's vision and mission statements; appointing someone to oversee school health; allocating resources; and regularly communicating the importance of wellness to students, school staff, and parents.

Establish a school health council or team.

District school health councils include at least one representative from each CSH component**, and school administrators, parents, students, and community representatives involved in the health and well-being of students. School health teams include a site administrator, an identified school health leader, teachers and other staff representing the CSH components**, parents, students, and community representatives (when appropriate).

Identify a school health coordinator.

The school health coordinator helps maintain active school health councils; facilitates health programming; organizes activities addressing the CSH components**; and facilitates actions to achieve a successful, coordinated school health system (e.g., policies, programs, activities, and resources).

Develop a plan.

The plan should present a strategy for achieving health promotion goals and fit into a school's overall improvement plan to link health with learning outcomes.

Implement multiple strategies through multiple components.

Each CSH component** employs a unique set of strategies, including classroom instruction, policies and procedures, environmental change, health, counseling and nutrition services, parent and community involvement, and social support. However, no single strategy or single component will achieve all the desired health outcomes for all students. It is necessary to implement all of the components so every strategy can be employed to address health behaviors and improve student learning.

Focus on students.

The focus of CSH should be on meeting the education and health needs of students, and providing opportunities for students to be meaningfully involved in the school and the community. School health efforts should give students the chance to exercise leadership, build skills, form relationships with adults, and contribute to their school and community.

Address priority health-enhancing and health-risk behaviors.

Schools can implement policies and programs (e.g., promote physical activity and healthy eating; discourage tobacco, alcohol, and drug use) to help students avoid or reduce health risk behaviors that contribute to the leading causes of death and disability among young people as well as among adults.

Provide professional development for staff.

Professional development provides opportunities for school employees to identify areas for improvement, learn about and use proven practices, solve problems, develop skills, and reflect on and practice new strategies. In districts and schools promoting a coordinated school health approach, professional development should focus on the development of leadership, communication, and collaboration skills.

**The eight components of CSH are: health education; physical education; health services; nutrition services; counseling, psychological, and social services; healthy and safe school environments; staff wellness; and family and community involvement.

Getting Started: Tips for Successful Program Development and Implementation

Environmental Justice and Children's Health in Schools

When addressing children's environmental health in schools, it is important to note that significant disparities exist in the prevalence of chronic health outcomes in children. For example, while the prevalence of asthma has been reported to be slightly less than 10% in American children as a whole, in 2009, the prevalence of asthma in African American children living below the poverty line was approximately 18%, or twice the national average. In some communities of Puerto Rican descent, the prevalence of asthma has been reported in excess of 20%. Children in many of these same communities experience achievement gaps in standardized tests, and increased absenteeism due to health concerns only exacerbates this problem. Numerous asthma triggers can be present in school environments, ranging from mold to constituents in cleaning products and pesticides. It is critically important to consider the potential impact of health disparities in underserved populations when designing effective strategies to maximize student health and achievement in school environments.

i, ii) Akinbami, L., Moorman, J., & Liu, X. (2011). Asthma prevelance, health care use, and mortality: United States, 2005-2009. *National Health Statistic Reports*, 32. National Center for Health Statistics.

Effective K-12 school environmental health programs are built through collaboration among all members of the school community. A successful and well-coordinated K-12 school environmental health program is characterized by school administrators, teachers, staff, facility managers, and students who view health protection and promotion as an essential part of meeting the school's mission. The most successful K-12 school environmental health programs will utilize an ongoing process to develop, implement, and evaluate policies, procedures, and practices that strive for continuous improvement. Before a school develops its environmental health program, it is necessary to build an infrastructure that will support and sustain the program. The following steps will be essential for a school and/or school district preparing to implement a K-12 school environmental health program.

Secure Administrative Support

The first step to implementing a K-12 school environmental health program should be securing administrative support from senior leadership of the school or school district (e.g., district superintendent, school principal and/or school board). School administrators can support the program in many ways, including:

• Incorporating environmental health in the school's or school district's vision and mission statements;

Allocating resources specifically for program policies, procedures, and practices; and
Communicating the goals of the program to the school community.

Establish a School Environmental Health Team or Committee

- Schools and school districts are encouraged to form an environmental health team or committee
- that can assist in developing and implementing a K-12 school environmental health program, and
- serve as a resource for parents and the surrounding community. Members should include
- administrators, teachers, school nurses and/or other health services staff, and facility managers.
- Schools and school districts may choose to include students, parents, and/or community agencies
- and organizations (e.g., local health jurisdictions, colleges/universities) as well.

Identify Priorities and Goals

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It is important for the environmental health team to identify areas of greatest concern/interest for each school and develop a list of priorities. Setting priorities will depend on a number of factors:

- Urgency of the environmental health issues present at the school;
- Impact/benefit of addressing the issue;
- Ability to make significant progress within a set timeframe;
- Resource constraints; and
- Stakeholder support.

SCHOOL HIGHLIGHT: New Hampshire Schools

At the school district level, a diverse committee of key decision makers, school staff, parents, and local community supporters can be instrumental in sustaining a successful K-12 school environmental health program, and foster increased coordination and collaboration on common goals. All schools participating in New Hampshire's Partners for Healthy Schools program form a committee made up of key school staff (e.g., principals, teachers, nurses, and facilities managers). This committee is in charge of developing work plans for their school and encouraging buy-in at the school level.

The environmental health priorities identified by the environmental health team can be used as a guide to develop a list of program goals that are clear, measureable, and can be reasonably accomplished within a specified timeframe. Examples of general goals include:

- Improve indoor air quality (IAQ) through adoption of EPA's IAQ Tools for Schools Program;
- Reduce classroom chemical hazards by removing dangerous chemicals, adopting green chemistry curricula and purchasing only the amounts of chemicals needed;
- Ensure safe drinking water by testing for lead at all drinking water taps; and
- Reduce pest problems by adopting integrated pest management (IPM) practices.

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It is imperative that all individuals involved in the K-12 school environmental health program understand the program goals.

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Develop an Action Plan

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School and/or school district priorities and goals should be captured in an action plan that program participants can refer to on a regular basis. In addition to priorities and goals, the action plan should identify:

- The roles, responsibilities, and expectations for program participants;
 - Methods for implementing program components (e.g., policies, procedures, practices, and regulations);

- Available resources for program implementation and how the resources will be allocated;
 - A timeframe for program implementation; and
 - Performance measures for evaluating program success.

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A copy of the action plan should be kept in a centrally located place(s) where program participants can easily access it. The plan should be considered a "living document" and should be updated regularly to reflect shifting priorities and resources; current policies, practices, and procedures; and changing roles and responsibilities.

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SCHOOL DISTRICT HIGHLIGHT:

Carrollton-Farmer's Branch Independent School District (CFBISD) in Carrollton, TX

In April 2002, the Carrollton-Farmer's Branch Independent School District (CFBISD) launched the TEAMS (Tools for Schools, Energy, Asbestos, Moisture Management, Safety and Security) program as a way to address the management of environmental and safety issues district-wide. TEAMS assembled a comprehensive environmental and safety team, including:

- Executive Director of Facilities Services/Transportation
- Director of Maintenance
- Director of Security and Operations
- Science Coordinator
- Occupational Health Nurse
- Health Services Supervisor
- Custodial Department Head
- Athletics Director
- Construction Supervisor
- HVAC Controls
- Environmental Specialist
- Nurse Manager

In 2011, TEAMS evolved into TIMES (Tool for Schools, Integrated Pest Management, Moisture Management, Energy, Safety and Security), as asbestos is no longer a significant environmental issue in the district. TEAMS/TIMES has helped CFBISD develop policies and educational tools to ensure students, faculty, school staff, and the community at large have a greater understanding of environmental and safety issues within the school, particularly in the classroom setting.

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Provide Faculty and Staff Training

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Providing training opportunities to school and/or school district faculty and staff prior to program implementation is crucial for future success. Training can come from a partnership between governmental and non-governmental organizations, from successful peer trainers, or from a trainer with expertise in school environmental health. Trainers should be able to speak from experience and communicate effectively with the audience being trained. Initial training topics should be tailored to a school's areas of greatest need, and could focus on:

- The purpose of a K-12 school environmental health program;
 - The components of the program being implemented at the school and/or school district;
 - The benefits for students, faculty, and school staff; and
 - The policies and procedures currently in place that support the program.

In addition to initial training, school and/or school district faculty and staff should be encouraged to pursue professional development opportunities that relate to school environmental health issues. Further information on training can be found in the Faculty and Staff
Training section.

"An important approach to training maintenance staff is to tell them that they are "key players" in this effort; that they are public health workers involved in making healthy buildings for these students and staff. Our module explains the law, the basics of green cleaning, etc., and presents the products they are allowed to work with... "

Connecticut Department of Public Health

Encourage Student Involvement

The ultimate goal of a K-12 school environmental health program is to create safe, healthy and productive learning environments for students. Enabling student participation throughout program implementation gives students a sense of ownership and accountability in the ultimate success of the program, and provides an opportunity for unique learning experiences. Student involvement can come in many forms, including:

- Adopting an environmental health curriculum in relevant courses (e.g., science and health);
- Encouraging high school seniors to incorporate school environmental health topics into senior projects;
- Establishing an environment/environmental health club or a related student-led group;
- Offering extra-curricular activities that relate to the environment and/or environmental health; and
- Offering volunteer opportunities at the school or in the community that promote environmental stewardship.

Further information on incorporating environmental health into student curriculum can be found in the Student Curriculum section.

How to Use the Model Program

The following model K-12 school environmental health program was developed as a tool for schools and school districts to use in planning specific actions they can take to implement their own K-12 school environmental health program. Whether a school or school district is in the planning stages of implementing its first K-12 school environmental health program or has a successful program in place, the model program has information and resources to support their efforts.

The model program consists of four sections:

• Five Key Components of a K-12 School Environmental Health Program: This section discusses five key components of a sustainable K-12 school environmental health program and recommends actions schools and school districts can take to address each component in their program. Schools can use the environmental health priorities that are identified in the program planning process to determine which actions best apply to their situation. Each component offers three tiers of actions a school and/or school district can take to build a K-12 school environmental health program.

It is not uncommon for individual environmental health issues to be addressed through actions under several of the components. Schools should complete the actions that best align with and address their program priorities. Schools and/or school districts will often find that by taking actions under one component (e.g., Routine Cleaning and Maintenance) they will also be addressing issues relevant to other components (e.g., Control Pests and Reduce Pesticide Use).

Additional Opportunities for Promoting Environmental Health in School Facilities:
 This section presents general information that schools can utilize as they plan for and undertake major construction and renovation projects, as well as recommendations for improving classroom comfort (e.g., lighting, acoustics, ventilation, and temperature control) and becoming more energy and water efficient.

• <u>Faculty and Staff Training</u>: This section presents information on training for faculty and school staff that addresses the key components of a K-12 school environmental health program; their roles and responsibilities in the program; and how to make the program sustainable. Training opportunities should be provided in advance of program implementation and address all aspects of the K-12 school environmental health program, not just the areas the faculty and school staff have expertise and experience in.

• <u>Student Curriculum</u>: This section offers creative ways to incorporate environmental health into lesson plans and classroom activities to engage students in environmental health issues, and how these issues affect them.

Five Key Components of a K-12 School Environmental Health Program

This section describes the five key components of a K-12 school environmental health program; how each component contributes to creating healthy learning environments for students and school staff; and introduces some of the actions that schools and school districts can take to implement a K-12 school environmental health program.

The components are presented in a three tier structure to demonstrate how every school, even those with little or no additional resources, can take some actions to improve school environmental health, and ensure that students and school staff have healthy places to learn, work, and play.

1524 Tier 1 actions are low cost fixes schools can make immediately, and are a good starting point for schools with little or no previous experience with environmental health 1525 1526 programs. 1527 Tier 2 actions are essential components of a fundamental K-12 school environmental 1528 1529 health program. 1530 Tier 3 actions are provided for schools that have established a successful K-12 school 1531 1532 environmental health program and are looking for ways to enhance their pre-existing 1533 program. 1534 1535 **School Environmental Compliance** 1536 The actions suggested in the model program are voluntary. However, it is important to note that there are a 1537 number of environmental regulations with which, if applicable, schools must comply. Environmental compliance is 1538 an integral part of a K-12 school environmental health program. A list of Key Federal EPA Regulations for K-12 1539 Schools is located on EPA's schools website as a helpful tool to remind K-12 schools of their key environmental

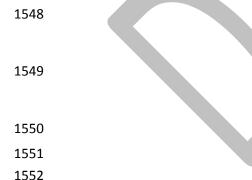
that may also apply to K-12 schools.

For additional tools to promote compliance at K-12 schools, visit <u>EPA's Healthy School Environment Resources</u> website. Also, visit the <u>Campus Environmental Resource Center</u> (Campus ERC). Campus ERC is a library of resources that support campus environmental performance improvement and help visitors better understand environmental regulations. Although Campus ERC is designed for use by colleges and universities, K-12 school

requirements. This list does not include all potentially applicable federal environmental regulations for schools,

and does not address additional, and sometimes more stringent, state, local and tribal environmental regulations

districts may find some of its resources helpful.



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Component 1: Routine Cleaning and Maintenance

Why is this important?

School environments are healthier when they are kept clean and well maintained. Unsanitary conditions attract insects and vermin, and irritants and allergens found in dust and dirt can have a negative impact on student health and performance in schools. Regular and thorough cleaning and building maintenance can prevent pest problems, minimize irritants and allergens, and create healthier learning and working environments for students and school staff.

Choosing the right cleaning products and practices is critical for maintaining a healthy school environment and protecting the health of students and school staff. The chemicals found in some cleaning products can cause health problems, including eye, nose, and throat irritation; headaches; and in some cases can trigger asthma attacks. Using green cleaning products and practices can help to avoid these health effects, increase the lifespan of facilities, and often increase cost savings by tailoring the use of cleaning products.

Green Cleaning

Green cleaning means using cleaning products and practices that pose less harm to human health and the environment. Green cleaning products have one or more of the following traits:

- low or no volatile organic compounds;
- neutral pH levels;
- no known carcinogens; and
- are biodegradable.

For more information on green cleaning in schools, see the Schools Chemical Cleanout Campaign (SC3) green cleaning fact sheet.

Maintaining the school facility is just as

important as routine cleaning to ensure a healthy environment for students and school staff. A regular inspection program can identify problems before they impact the school environment and the occupants' health. School building maintenance protocols should address the entire building envelope: the foundation, exterior and interior walls, windows and doors, and roofing.²⁸

Actions Schools Can Take for Routine Cleaning and Maintenance

Tier 1: Simple Steps Schools Can Take to Get Started

The best way to launch a K-12 school environmental health program is to identify low-cost, quick fixes and solutions that can be implemented immediately. Schools should start by asking questions like, where are the school's areas of greatest need, and what resources are available to address those needs? The answers to these questions will help schools decide where to focus their initial efforts.

Review the school's current cleaning and maintenance practices and verify the following actions are routinely taken:

• For cleaning:

o Schedule routine cleaning when the building is unoccupied.

1600	0	Use only the amount of product suggested on the label.				
1601	0	Use proper equipment to perform cleaning tasks.				
1602	0	Ensure cleaning products are inaccessible to students.				
1603	0	Maintain an up-to-date inventory of all cleaning products used.				
1604	0	Clean and remove dust from hard, impermeable surfaces with a water-dampened				
1605		cloth.				
1606	0	Vacuum using high-efficiency vacuums and filters.				
1607	0	Ensure garbage is stored in appropriate containers and disposed of properly at the				
1608		end of each day.				
1609	0	Purchase and use walk-off i	mats at building entrances.			
1610	0	Conduct thorough				
1611		cleaning of kitchens,				
1612		cafeterias and other food	Healthy Schools Campaign's Green Clean			
1613		use areas.	Schools:			
1614	0	Reduce clutter, such as	National Partnership to Green America's			
1615		excess paper or plush	Schools			
1616		toys, which collect dust				
1617		and allergens and	The Green Clean Schools Initiative brings together			
1618		prevent thorough	the cleaning industry, educational leaders, parents			
1619		cleaning.	and advocates to support schools in adopting			
1620			environmentally friendly policies, practices, and			
1621	• For ma	aintenance:	products. The partnership provides important resources, tools, and success stories to help schools			
1622	0	Caulk all windows and	adopt environmentally friendly policies, practices,			
1623		door frames, and seal	and resources. To learn more and view webinars,			
1624		any joints.	visit the Healthy Schools Campaign Green Clean			
1625	0	Monitor the interior of	Schools website.			
1626		the roof for water				
1627		damage.				
1628	0	Inspect windows and				
1629		doors for physical damage a	and improper seals.			
1630	0	Ensure all windows and doors are functioning properly.				
1631	0	Check weather-stripping and replace as needed.				
1632	0	Inspect the foundation for cracks, decay, and water infiltration.				
1633	0	Inspect exterior plywood for cracks, decay, and water damage.				
1634	0	Clean exterior walls at least twice a year.				
1635	0	Cut back overgrown vegeta	tion near exterior walls.			
1636						
1637	Tier 2: Key Eld	ements for a Fundamental K	-12 School Environmental Health Program			
1638	Schools that have completed at least half of the actions listed under Tier 1 will be prepared to					
1639	implement the key elements necessary for a fundamental K-12 school environmental health					
1640	program.					
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o Read and follow product labels.

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• Establish a green cleaning plan for your school.

and implementing the plan.

o Involve teachers, administrators, purchasing officials, and custodians in designing

- Select cleaning products with positive environmental attributes (i.e., low or no volatile organic compounds (VOCs), no potential carcinogens) such as <u>Design for the Environment labeled products</u>. Further information on selecting green cleaning products can be found in the <u>Additional Information and Resources</u> section.
 - o Avoid using cleaning products containing fragrances that may trigger asthma symptoms, or those with strong odors.
 - o Incorporate green cleaning concepts and practices into your preventative maintenance plan. For example:
 - Spray cleaning cloths with product rather than the surface to be cleaned;
 - Use microfiber cleaning cloths and other tools to minimize the amount of cleaning products used; and
 - Purchase products as concentrates and dilute on-site.
- Train cleaning/maintenance staff on cleaning practices and policies, as well as procedures for handling a chemical spill.
- Conduct an inventory of cleaning products. Identify and properly dispose of products that are outdated, unknown, or not needed.

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- Maintain a standardized list of approved and/or disapproved cleaning products at the school district level. This will ensure all schools in the district use the same cleaning products and techniques, and are cleaned to the same standard.
- Schedule an annual inspection of the school facilities by a building professional.

SCHOOL DISTRICT HIGHLIGHT: Northeast Independent School District in San Antonio, TX

The Northeast Independent School District facilities maintenance department used the IAQ Tools for Schools Framework to centralize its custodial services and adopt a "Going Green" initiative. The school district's "Going Green" efforts have included implementing standard cleaning protocols across the district; selecting Green Seal certified products whenever available; and performing monthly campus inspections and assessments. Since adopting the initiative, the Northeast Independent School District has reduced chemical costs by 19% and has received recognition for their green cleaning efforts.

- Inspect roofs at least twice a year, including a pre-winter inspection in October or November.
- Maintain accurate records of roof and building inspections.

Tier 3: Enhance a School's Pre-Existing Program

Schools that have taken steps to implement a fundamental K-12 school environmental health program can build upon their pre-existing program(s) by considering the following actions:

• Develop and record a measure(s) specific to the school that will demonstrate improvement in adopting healthier cleaning and maintenance practices. For example:

o Number of green cleaning products piloted

- o Number of training workshops held and number of participants
- o Pounds of toxic chemicals avoided by switching to more environmentally-friendly, less toxic cleaning products
- o Number of nurse visits due to symptoms associated with exposure to cleaning products (e.g., eye, nose, and throat irritation; headaches; asthma attacks)²
- Integrate green cleaning concepts into the student curriculum.
- Incorporate healthier cleaning information and updates into newsletters, school announcements, and other outreach material.



Revised 2/8/2012

² When collecting such data, schools and school districts may have to consider and respond to human subject review protocols (e.g., state institutional review board).

Component 2: Prevent Mold and Moisture

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Why is this important?

The key to mold control is moisture control. Keeping the school environment dry is essential for

SCHOOL HIGHLIGHT:

Broward County, FL Public Schools

Prior to 2002, Broward County Public Schools did

not have an integrated system to manage its IAQ.

But when a building audit revealed that seven

elementary schools had moisture problems, the

district knew it needed to act quickly to protect

the buildings and their occupants. School district

officials turned to the EPA's IAQ Tools for Schools

program to address the immediate issues, and

environments and indoor environmental health.

then develop a comprehensive, integrated

approach to proactively manage indoor

maintaining a healthy school building, as

well as promoting an environment

1737 conducive to learning and working. The

1738 presence of moisture within building

structures stimulates the growth of molds

and other biological contaminants, and

damp schools provide a nurturing

environment for mites, roaches, and

1743 rodents, which are associated with asthma.

allergies and other respiratory diseases.

1745 Individual school districts have incurred

1746 costs from \$200,000 to as much as \$13

million for remediating mold and mildew

1748 damage. ^{29,30,31,32,33} A few hundred dollars

1749 of annual preventative maintenance can

avoid the need for costly mold

1751 remediation, as well as the potential legal

liability posed by the presence of mold

and mildew and its health risk for students and school staff.⁴

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Actions Schools Can Take to Prevent Mold and Moisture

Tier 1: Simple Steps Schools Can Take to Get Started

The best way to launch a K-12 school environmental health program is to identify low-cost, quick fixes and solutions that can be implemented immediately. Schools should start by asking questions like, where are the school's areas of greatest need, and what resources are available to address those needs? The answers to these questions will help schools decide where to focus their initial efforts.

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Conduct an initial inspection of the school environment. Identify immediate actions that can be taken for:

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Preventing moisture/mold in schools

- o Ensure ventilation systems are circulating the indoor air properly. See Component 4: Maintain Good Ventilation for more information.
 - o Maintain indoor humidity levels between 30% and 50%.
 - o Ensure indoor pool facilities are well ventilated to control humidity levels.
 - o Fix leaking plumbing and leaks in the school building as soon as possible.
 - o Watch for condensation and wet spots. Address sources of moisture problems promptly.

o Dry wet areas within 24-48 hours. 1774 o Vent moisture-generating appliances (e.g., dryers) to the outside. 1775 o Ensure carpeting is not installed in areas with exposed plumbing. 1776 1777 Maintaining gutters, downspouts, scuppers and storm drains 1778 o Downspouts, scuppers and storm drains should be intact and properly connected. 1779 o Downspouts should drain to the storm sewer or a visibly sloped grade away from 1780 the building. 1781 o Downspouts, scuppers and storm drains should have no evidence of storm water 1782 overflow or obstruction. 1783 o Gutters, downspouts, scuppers and storm drains should be free of excessive 1784 debris. 1785 o Gutters and roofs should have no standing water. 1786 1787 Tier 2: Key Elements for a Fundamental K-12 School Environmental Health Program 1788 Schools that have completed at least half of the actions listed under Tier 1 will be prepared to 1789 implement the key elements necessary for a fundamental K-12 school environmental health 1790 1791 program. 1792 1793 Preventing moisture/mold 1794 o Conduct routine moisture inspections to ensure the school building is free of moisture problems, water damage and visible mold on all interior surfaces. 1795 o Establish a mold prevention and remediation plan. 1796 o Take steps to prevent water from ponding within 10 feet of the building 1797 1798 foundation: Visible slope away from building to grade within 10 feet of building 1799 foundation 1800 Irrigation water spray lines not on building or within 3 feet of foundation 1801 Know what steps to take in the event of a flood. EPA's Flood Cleanup website 1802 has information on cleaning up after a flood and how to prevent mold and 1803 moisture problems. 1804 1805 1806 Tier 3: Enhance a School's Pre-Existing Program Schools that have taken steps to implement a fundamental K-12 school environmental health 1807 program can build upon their pre-existing program(s) by considering the following actions: 1808 1809 • Develop and record a measure(s) specific to the school that will demonstrate 1810 improvement in adopting effective moisture management techniques. Examples include: 1811 o Reduction in the number of mold findings within the school facilities. 1812 o Reduction in the number of cleaning/remediation events due to mold growth. 1813 1814 • Purchase furniture and carpeting made from mold-resistant materials when replacing 1815 worn or damaged items. 1816 1817

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• Integrate information on mold into the student curriculum.

• Incorporate mold and moisture management information and updates into newsletters, school announcements and other outreach material.



Component 3: Manage Chemicals and Environmental Contaminants

Why is this Important?

 It is important for schools to provide a safe and healthy learning environment for students by preventing exposure to environmental contaminants that pose health risks to students, faculty, and staff, as well as the environment. Children spend a significant portion of their time in school, and may be more vulnerable to environmental exposures than adults because:

- Their bodily systems are still developing;
- They eat more, drink more, and breathe more in proportion to their body size than adults;
- Their behaviors can significantly increase their exposures to chemicals and potentially harmful organisms.

Chemicals and Chemical Containing Products

Schools use chemicals in classrooms, science laboratories, and vocational shops as well as in facility maintenance. Many of these chemicals are toxic to humans, animals, and/or the environment and should be used, handled, and disposed of in a manner that protects students and school staff from accidents and risk of exposure. Toxic chemicals can cause serious health

School Environmental Compliance

Many chemicals found in buildings, such as asbestos, lead, polychlorinated biphenyls (PCBs) and mercury are regulated by the EPA. A list of Key Federal Environmental Regulations at K-12 Schools is located on EPA's schools website as a helpful tool to remind K-12 schools of their key environmental requirements. This list does not represent all potentially applicable environmental regulations at schools. Additional, and sometimes more stringent, federal, state, local, and tribal environmental regulations may also apply to K-12 schools.

effects, including cancer; brain and nervous system disorders; organ damage (i.e., liver, kidneys, and lungs); irritation of the eyes, skin, nose, and throat; and asthma attacks.

For example, mercury is a known neurotoxin and is used in many items found throughout schools, such as thermometers, barometers, switches, thermostats, fluorescent lamps, and laboratory reagents. Exposure to high levels of mercury has been linked to nervous system and developmental problems, especially in children. Exposure to low levels of mercury over long periods of time can cause irritability, impulsiveness, drowsiness, impaired memory, and sleep disturbances.

Another group of chemicals of concern for schools are polychlorinated biphenyls (PCBs), found in a variety of building products, including fluorescent light ballasts, which were installed in schools built before 1979. EPA banned the processing or use of PCBs in 1979; however, a large number of fluorescent light ballasts that were installed prior to EPA's ban may contain PCBs and may still be used in schools. PCBs are highly toxic and high levels of exposure may cause cancer in humans. While intact PCB-containing light ballasts pose no immediate health threat, failing or leaking fluorescent light ballasts in schools may result in unsafe levels of PCBs in the air children breathe over the long-term.

Radon

Radon is a colorless, odorless and tasteless radioactive gas that occurs naturally in almost all soil and rock. Radon is found in outdoor air and can enter schools through cracks or other openings in the foundation. Exposure to radon is the second leading cause of lung cancer after smoking; however, there is no evidence that children are at greater risk of lung cancer than adults.

Drinking Water

Ensuring safe drinking water in schools is important because students and school staff may consume a significant amount of their daily water intake in schools. Aging, leaded plumbing systems and leaking pipes can lead to contamination of a school's drinking water supply. Two common contaminants found in school drinking water are microbes and lead. Improperly

SCHOOL HIGHLIGHT: Ballou High School, Washington DC

On October 2, 2003, Washington, D.C.'s Fire Department Hazmat Unit responded to an emergency call from Ballou High School. A student had obtained 250 milliliters of elemental mercury from a science laboratory and had sold some of it to other students. This incident led to an exhaustive mercury spill clean-up.

Contamination did not stop at the school. Students unknowingly carried mercury on shoes and clothing through the streets, onto city and school buses, and into their homes. Eleven homes and one common area were found to be contaminated and about 16 families were displaced from their homes for a month.

As a result of the mercury spill, Ballou High School was closed for 35 days and over 200 homes were tested for mercury contamination. Total cleanup costs were about \$1,500,000.

Learn more about proper mercury management, and the cost of mismanaging mercury, in schools.

 maintained water systems can also harm the environment and have financial implications (e.g., higher water bills). Leaking pipes lead to water loss, which can promote mold growth and be very costly for a school to remediate.

Outdoor Air Pollution: Diesel Emissions

Bus and truck idling at schools can produce concentrated diesel exhaust emissions both inside and outside school buildings. Diesel exhaust contains fine particulate matter that, when inhaled, can cause lung damage and aggravate pre-existing respiratory conditions, such as asthma. Diesel particulate matter has also been identified as a likely cause of cancer. The soot and gases emitted by diesel engines are associated with acute eye, throat, and bronchial irritation; exacerbation of asthma and allergies; and potential interference with lung development in children. In addition to impacting human health, diesel exhaust also harms the environment by contributing to smog formation and acid rain.

Outdoor Air Pollution: Ozone and Particle Pollution

- Ground level ozone and particle pollution are the two air pollutants that pose the greatest threat 1926
- 1927 to human health in the United States. Ozone, the primary component of smog, can cause throat
- irritation, coughing, chest tightness, shortness of breath, and aggravated asthma symptoms. 1928
- 1929 Particle pollution, or particulate matter, can embed deep within the lungs and cause serious
- health problems, especially for those with respiratory conditions (e.g., asthma). Even healthy 1930
- individuals can experience temporary symptoms from exposure to particle pollution, including 1931
- 1932 irritation of the eyes, nose and throat; coughing; phlegm; chest tightness; and shortness of breath.
- 1933
- 1934 Second-Hand Smoke
- 1935 Breathing secondhand smoke can be harmful to children's health. Children's exposure to
- secondhand smoke is responsible for increases in the number of asthma attacks and severity of 1936
- symptoms in 200,000 to 1 million children with asthma, and respiratory tract infections resulting 1937
- 1938 in 7,500 to 15,000 hospitalizations each year. The developing lungs of young children are
- 1939 severely affected by exposure to secondhand smoke for several reasons: children are still
- developing physically; they have higher breathing rates than adults; and they have little control 1940
- 1941 over their indoor environments. Children receiving high doses of secondhand smoke run the
- greatest risk of damaging health effects. 1942

Actions Schools Can Take to Manage Chemicals and Environmental Contaminants

Tier 1: Simple Steps Schools Can Take to Get Started

1945 The best way to launch a K-12 school environmental health program is to identify low-cost, quick fixes and solutions that can be implemented immediately. Schools should start by asking 1946 questions like, where are the school's areas of greatest need, and what resources are available to 1947 address those needs? The answers to these questions will help schools decide where to focus 1948

their initial efforts. 1949

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Chemicals and Chemical Containing Products

- Conduct a chemical inventory of the school, or locate and review an existing inventory.
 - Compare the chemical inventory to the school district's approved chemicals list, if available. Chemicals not on the school district's list should be marked for removal. King County, Washington's School Chemical List is another excellent resource to identify appropriate chemicals to use in schools, as is the Consumer Product Safety Commission (CPSC)/National Institute for Occupational Safety and Health (NIOSH) School Chemistry Laboratory Guide.
 - o Update the school chemical inventory if it is more than a year old.

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- Where applicable, perform screenings and inspections of chemical-containing equipment (e.g., PCB fluorescent lighting ballasts, mercury-containing items) to ensure the equipment is properly managed. Develop chemical equipment inventory lists, as needed.
 - o Inspect the school's fluorescent light ballasts for leaking PCBs.
 - Ballasts manufactured through 1979 may contain PCBs, and ballasts manufactured between 1979 and 1998 that do not contain PCBs should be labeled, "No PCBs." If the light ballast does not contain this label, assume it has PCBs.

- If a light ballast(s) is found to be leaking PCBs, federal law requires the 1969 immediate removal and disposal of the light ballast and disposal of any 1970 PCB-contaminated materials at an EPA-approved facility. 1971 1972 Consult EPA's Proper Maintenance, Removal, and Disposal of PCB-Containing Fluorescent Light Ballasts website for more information on 1973 inspecting and replacing fluorescent light ballasts. 1974 1975 Visually inspect chemical storage areas. Are the chemicals: 1976 o Clearly labeled? 1977 o In their original, undamaged containers? 1978 o Outdated? 1979 o In a designated storeroom or cabinet with operable locks? 1980 o Stored according to chemically compatible families? 1981 o Stored on appropriate shelving (e.g., shelving that is stable and not deteriorating)? 1982 1983 Review the school's mercury inventory list. 1984 o If the school does not have an up-to-date mercury inventory, identify and catalog 1985 all elemental mercury, mercury compounds, mercury solutions, and mercury-1986 containing devices at the school. 1987 o Common mercury-containing items found in schools include thermometers, 1988 barometers, switches, thermostats, flow meters, lighting (tubes and compact 1989 fluorescent lamps), and laboratory reagents. 1990 1991
 - Review the school's chemical hygiene plan:
 - o Does the plan have a chemical spill control policy?
 - o Does the plan include staff training requirements for chemical management, including purchasing, use, storage, and addressing spills?
 - o Does the plan identify contact information for the local authorities responsible for managing chemical spills?
 - o If the chemical hygiene plan does not address one or more of these topics or if a chemical hygiene plan does not exist, take steps to develop these policies and procedures. Local and/or state environment and health departments can be good places to start.
 - Review the school's hazard communication plan. The plan should contain the following information:
 - o Contact information for the person responsible for implementing the plan;
 - o Procedures for acquiring, maintaining, and providing access to Safety Data Sheets (SDSs);
 - o An updated chemical inventory;
 - o Provisions for employee training; and
 - o Chemical labeling requirements.

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• Test all school buildings for radon. Radon levels should be lower than EPA's action level of 4pCi/L in air. Guidance for radon testing and mitigation can be found in

Appendix G: Radon of the IAQ Reference Guide in the IAQ Tools for Schools Action Kit.

Drinking Water

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- Determine whether the school is a public water system (PWS). A PWS is a system that serves water to 25 or more of the same people more than 60 days per year, or a system that has 15 or more service connections. Most schools are usually part of a larger PWS but smaller schools in rural areas can be their own PWS.
 - If a school is a PWS, the city, county or state may take drinking water samples and work with the school to ensure it maintains compliance with applicable drinking water regulations.
 - o If the school has its own water supply system, check with the system operator to ensure that the system is in compliance with drinking water regulations.
- Review the school's files for plumbing surveys that identify areas of high risk for lead sources. If these records do not exist, or if significant plumbing modifications have been made since the last survey, conduct a plumbing survey as soon as possible. For help conducting a plumbing survey, see EPA's 3Ts for Reducing Lead in Drinking Water manual.
- Maintain drinking water taps by routinely cleaning faucet aerators and disinfecting drinking water outlets and water fountains.
- Compare the school's drinking fountains with those identified on <u>EPA's list of known lead-</u> <u>containing models</u>. Make note of any fountains that are on EPA's list and take them out of service.

Drinking Water in Schools and Childcare Facilities

EPA is responsible for ensuring the safety of the nation's drinking water in public water supplies. EPA estimates that approximately 10,000 schools and child care facilities maintain their own water supply and are regulated under the Safe Drinking Water Act (SDWA). In addition, there are approximately 90,000 public elementary and secondary schools and an estimated 500,000 licensed child care facilities in the nation that are not regulated under SDWA and may or may not be conducting voluntary drinking water quality testing. Whether your facility is a regulated or non-regulated school or child care center, you can find information about drinking water quality on EPA's Drinking Water in Schools and Child Care Facilities website.

- i) U.S. Department of Education, National Center for Educational Statistics, Common Core of Data, "Public Elementary/Secondary School Universe Survey," 2001-2002
- ii) National Child Care Association sponsored study "The National Economic Impacts of the Child Care Sector," Fall 2002
- Review the school's files on lead test results for drinking water taps. If testing records do
 not exist, or if testing has not been conducted within the past five years, collect and
 analyze samples from drinking water taps. EPA's Lead in Drinking Water website
 provides guidance on conducting lead testing in schools.

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• Lead concentrations at all drinking water taps should be below the 3Ts concentration of 20 parts per billion (ppb) for a 250mL sample. This concentration applies only for schools whose water supply is provided by a municipal system (i.e., a PWS). For schools that have their own well or water source, lead concentrations at 10 percent of drinking water taps must be below the EPA action level of 15 parts per billion (ppb). These schools must test for lead and be below the lead action level to comply with the National Primary Drinking Water Regulations.

Outdoor Air Pollution and Second-Hand Smoke

- Review the current school bus schedules. Are they designed to minimize bus idling? If not, work with the appropriate personnel to revise the bus schedules accordingly.
- Identify the location of all school air handler intake vents. Ensure that intake vents are located away from high vehicular traffic areas and chimneys for school heating systems. If intake vents cannot be moved, direct traffic away from the vent locations if possible, or cone-off the areas during high vehicular traffic times.
- Keep classroom windows closed during periods of high vehicular traffic (e.g., before/after school and during rush hour if the school is located near a main street or highway), or on days when smog and/or pollen counts are high.
- Locate the school's procedures for responding to Air Quality Index advisories. If your school does not have procedures in place, or if the procedures are not up-to-date, take steps to develop or improve these procedures. Further information can be located in the Additional Information and Resources section.
- Institute a smoke-free policy for the school campus.

Tier 2: Key Elements for a Fundamental K-12 School Environmental Health Program

Schools that have completed at least half of the actions listed under Tier 1 will be prepared to implement the key elements necessary for a fundamental K-12 school environmental health program.

Chemicals and Chemical Containing Products

- Form a chemical management team at the school.
 - o Team members should have direct involvement with and/or knowledge of chemical management at the school, from purchasing chemicals to their ultimate disposal.
- Conduct quarterly or semi-annual chemical inventories to ensure all unused, unneeded, and unknown chemicals are identified and disposed of properly.

- Develop a responsible chemical management program for the school and/or school district. EPA's <u>Schools Chemical Cleanout Campaign (SC3) Tool Kit</u> has resources to help schools and school districts get started.
- Institute a chemical purchasing policy at the school.
 - All chemicals should be reviewed and purchased through one person or a team responsible for vetting chemicals for volatile organic compounds (VOCs) and other hazardous products.
 - o Purchase chemicals in quantities that will be used during the current school year.
 - Choose chemicals and chemical products using the safest possible ingredients.
 Consult EPA's Design for the Environment's <u>list of products</u> meeting their safer ingredient criteria.
 - o Prohibit the purchase of mercury products.
- Offer chemical management training for teachers and school staff.
- Conduct a chemical cleanout.
 - Use the school's chemical inventory to identify unused, unneeded, and unknown chemicals.
 - o Remove chemicals from the school with the help of a qualified and experienced professional. EPA's <u>Schools Chemical Cleanout Campaign (SC3) workbook</u> provides guidance on procuring professional chemical removal assistance.
 - o Remove and/or replace all excess, outdated, and unneeded mercury containing products with non-mercury containing alternatives. Ensure mercury is recycled and/or disposed of in accordance with federal, state, and local regulations.

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- Track radon test results, assessment data and pending actions so that facility maintenance personnel can plan accordingly.
- Retest routinely if schools were mitigated to ensure radon mitigation systems are functioning properly.

Drinking Water

- Test the school's drinking water for bacteria and other contaminants. Testing requirements and timing will differ depending on the number of people being served and where the school gets its water (ground water vs. surface water).
 - If testing shows that bacteria or other contaminants have entered the system and their levels are above the regulatory minimum, the school will need to take action.
 For more information on contaminants and taking action, refer to EPA's website on <u>current drinking water regulations</u>.
- If the school's drinking water lead concentrations exceed EPA's action level, take steps to develop a plan to reduce lead levels at all taps that do not meet the 20ppb (municipal system)/15ppb (well) standard. Plans may include:
 - o Testing for lead on a regular basis;
 - o Instituting a flushing program;

Clearing debris from outlet screens and aerators on a routine basis;
Replacing pipes, solder, and fixtures if they are known to be sources of lead; and
Disabling taps to prevent water consumption from that tap.

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Schools should implement identified actions in the plan according to priority and/or resources available. Further information to assist plan development and implementation can be found on EPA's Guidance and Tools website for Drinking Water in Schools and Child Care Facilities.

- Develop a plan for, and conduct routine maintenance of, the school's drinking water infrastructure.
 - o If the school acquires its drinking water from its own well, conduct source water
 - assessments and identify any surrounding activities or sources that might have an adverse effect on water quality.
 - Inspect water pipes for leaks and corrosion. Leaking and/or corroded pipes can introduce contaminants into the drinking water system and contribute significantly to water loss and mold growth.
 - o Inspect storage tanks to ensure on-site drinking water is free from contamination.
- Replace drinking fountains identified on <u>EPA's list of known lead-containing models</u> with fountains that do not contain lead.

Outdoor Air Pollution and Second-Hand Smoke

• Implement an anti-idling policy for school buses, and post signs stating all vehicles are prohibited from idling on school premises.

Tier 3: Enhance a School's Pre-Existing Program

Schools that have taken steps to implement a fundamental K-12 school environmental health program can build upon their pre-existing program(s) by considering the following:

Chemicals and Chemical Containing Products

• Implement green curricula in the classroom. <u>EPA's Schools Chemical Cleanout</u>
<u>Campaign (SC3) workbook</u> includes a section on putting together and starting a green curriculum in the classroom.

Radon

• Schedule re-testing following all major renovations, and consider how HVAC modifications or upgrades may affect radon intrusion.

The Reduction of Lead in Drinking Water Act

In January 2011, The Reduction of Lead in Drinking Water Act was passed to reduce the amount of lead allowed in "lead-free" plumbing materials from 8% to 0.25%. The new standard is modeled after a California law that went into effect on January 1, 2010. The Reduction of Lead in Drinking Water Act will become fully effective in January 2014, but some manufacturers are already making products according to the new standard. When replacing plumbing fixtures, make sure new fixtures are in line with the new definition of lead-free and are NSF International certified to reduce lead

Drinking Water

- Develop and record a measure(s) specific to the school that will demonstrate improvement in drinking water quality.
- Involve students in drinking water testing. A teacher and/or facility manager should ensure testing is completed according to established procedures to obtain meaningful results. This activity can be integrated into science and mathematics courses, as well as senior projects.

Outdoor Air Pollution and Second-Hand Smoke

• Have students monitor diesel emissions throughout the school year, before and after implementing an anti-idling policy.

• If funding allows, retrofit your current school bus fleet with improved emission control technologies, and/or replace older school buses with newer, more fuel efficient, and less-polluting buses. Visit EPA's National Clean Diesel Campaign website for more information.

• Participate in the <u>School Flag Program</u> to help the school and the surrounding communities know the daily air quality conditions. Schools in the flag program raise a brightly colored flag each day that corresponds to the air quality forecast. Based on the color of the flag (green, yellow, orange, or red), teachers and coaches can modify outdoor activities when the air quality is unhealthy.

Component 4: Maintain Good Ventilation

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Why is this important?

Indoor air pollution has been demonstrated to have an adverse impact on public health. Poor indoor air quality (IAQ) can cause short- and long-term health problems such as coughing, eye irritation, headaches, asthma episodes, allergic reactions, and in rare cases, life threatening

conditions such as respiratory distress. Improperly managed ventilation systems can contribute to airborne mold, infectious diseases, and carbon monoxide poisoning. Poor IAQ can also impact the comfort and health of students and school staff, which can in turn affect concentration, attendance, and classroom performance.

Good IAQ can help ensure a healthier and higher performance learning environment for students and school staff, and proper maintenance of ventilation equipment plays a big role in the quality of the indoor air. Adequate ventilation with outdoor air is a key component for good IAQ in schools and classrooms, and may contribute to mitigating the effects of radon and vapor intrusion. Indoor air may be two to five times more polluted than outdoor air and there are large populations of children who may be more susceptible to indoor pollutants than the general population. Also, the high occupant densities of schools and classrooms often makes it challenging for

building designers to incorporate ventilation systems that provide

SCHOOL DISTRICT HIGHLIGHT: Lakota School District in Butler County, Ohio

Lakota schools and the Trane Corporation have entered into a three-phase multi-million dollar facilities upgrade project that will save the school district \$667,000 in annual energy costs and more than \$260,000 in annual operating costs. As a result of energy efficient facilities upgrades, Lakota schools will receive an additional \$382,000 in rebates from the utility company, Duke Energy.

Some of the projects include:

- Mechanical and control system improvements in 9 schools.
- Plumbing retrofits in 13 buildings.
- Lighting upgrades in all schools.

Phase One results have already exceeded savings projections by 15 percent, equal to \$35,000 in savings over the original projections. Overall energy and operating cost savings are expected to be \$927,000 per year. Mike Taylor, Lakota Schools Superintendent, said, "It's great in these tight budgetary times that we are able to improve the teaching and learning environment while generating energy and operational savings. Because we are able to pay for the improvements through these savings, we can focus our capital budget on other needs in the district."

Learn more about Lakota Schools District's <u>facilities</u> upgrade project.

adequate outdoor air (in compliance with the industry's ventilation standard, <u>ASHRAE 62.1-2010</u>) while providing buildings with good IAQ and minimizing costs. Increased outdoor air ventilation rates can result in high heating and air-conditioning costs, and may contribute to indoor moisture problems in some geographic locations. Excessive indoor moisture can lead to mold growth, which is often a significant IAQ problem.

22812282 Actions Schools Can Take to Maintain Good Ventilation

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Tier 1: Simple Steps Schools Can Take to Get Started

The best way to launch a K-12 school environmental health program is to identify low-cost, quick fixes and solutions that can be implemented immediately. Schools should start by asking questions like, where are the school's areas of greatest need, and what resources are available to address those needs? The answers to these questions will help schools decide where to focus their initial efforts.

School Advanced Ventilation Engineering

Software (SAVES)

EPA's IAQ Tools for Schools School Advanced

package can help school designers assess the

potential financial payback and indoor humidity

control benefits of Energy Recovery Ventilation

Learn more on EPA's IAQ Tools for Schools SAVES

Ventilation Engineering Software (SAVES)

systems for school applications.

website.

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Conduct an initial inspection of the school's HVAC system and ensure the following actions are routinely taken:

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• Establish and implement a regular schedule for inspecting and changing filters.

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• Ensure condensate pans are clean, unobstructed, and draining properly.

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 Establish and implement a regular cleaning schedule for air supply diffusers, return registers, and outside air intakes.

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• Keep unit ventilators clear of books, papers, and other items.

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Tier 2: Key Elements for a Fundamental K-12 School Environmental Health Program

Schools that have completed at least half of the actions listed under Tier 1 will be prepared to implement the key elements necessary for a fundamental K-12 school environmental health program.

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• Continue to perform regular HVAC system inspections.

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• Establish a HVAC maintenance plan.

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• Ensure that air intakes are located away from high vehicular traffic areas and chimneys for the school's heating system.

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• Install carbon monoxide detectors in classrooms to monitor carbon monoxide levels.

• Ensure outdoor air ventilation meets or exceeds the industry's ventilation standard (ASHRAE 62.1-2010) or local code.

Tier 3: Enhance a School's Pre-Existing Program

Schools that have taken steps to implement a fundamental K-12 school environmental health program can build upon their pre-existing program(s) by considering the following:

• Develop and record a measure(s) specific to the school that will demonstrate improvement in HVAC system performance.

• Engage students in classroom activities and projects that focus on IAQ.

• Incorporate IAQ information and updates into newsletters, school announcements and other outreach material.

Component 5: Control Pests and Reduce Pesticide Use

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Droppings or body parts from cockroaches, rodents, and other pests can trigger asthma and can cause allergic reactions. Pests can also transmit infectious diseases. Pesticides pose risks to human health and the environment when people do not follow directions on product labels or if they use products irresponsibly (e.g., using pesticides when they are not needed, using pesticides for other than their intended use, or not following recommended application rates). Children may be especially sensitive to health risks posed by pesticides because their internal organs are still developing and maturing. Even minimum risk pesticides can have these unintended consequences if not used correctly, and may be ineffective in treating the pest problem.

Integrated Pest Management (IPM) is an effective and environmentally sensitive approach to pest management that uses current, comprehensive information on the life cycles of pests and

their interactions with the environment, in combination with available pest control methods, to manage pests economically, and with the least possible risk to people, property, and the environment. IPM is a safer and sometimes less costly option for effective pest management in schools. IPM practices can effectively control pests in schools while reducing pesticide use by 70-90%. 34 A school IPM program uses common sense strategies to monitor and exclude pests while also reducing sources of food, water and shelter for pests in school buildings and grounds. An IPM program takes advantage of all pest management strategies, including the judicious and careful use of pesticides when necessary. EPA's Integrated Pest Management (IPM) in Schools website is a good resource for schools and school districts to use in developing standards for

SCHOOL DISTRICT HIGHLIGHT: Monroe County, Indiana

Monroe County, Indiana achieved a 92 percent reduction in pesticide use, enabling them to direct their cost savings to hire a district-wide coordinator to oversee pest management in their schools. As a result, Monroe County was awarded the Governor's Award for Pollution Prevention.

The Monroe County IPM Program has now evolved into the Monroe School IPM Model. By using this model, the emphasis is placed on minimizing the use of broad spectrum chemicals, and on maximizing the use of sanitation, biological controls and selective methods of application. -- Monroe County Community Schools Corporation, Indiana

Learn more about the Monroe School IPM Model.

Actions Schools can Take to Control Pests and Reduce Pesticide Use

Tier 1: Simple Steps Schools Can Take to Get Started

The best way to launch a K-12 school environmental health program is to identify low-cost, quick fixes and solutions that can be implemented immediately. Schools should start by asking

IPM in schools.

questions like, where are the school's areas of greatest need, and what resources are available to 2411 address those needs? The answers to these questions will help schools decide where to focus 2412 their initial efforts. 2413 2414 Conduct an initial inspection of the school to identify potential pest problems. Identify 2415 immediate actions that can be taken for: 2416 2417 2418

Entryways

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- o Keep doors shut when not in use.
- o Place weather stripping on doors.
- o Caulk and seal openings in walls.
- o Install or repair screens.
- Install air curtains.
- o Keep vegetation, shrubs, and wood mulch at least 1 foot away from the school building.

Classrooms and Offices

- o Immediately place garbage in a trash can with a lid that closes securely, and remove trash daily from the school building.
- o Allow food and beverages only in designated areas and store food in airtight containers.
- o Clean all food crumbs or spilled liquids right away.
- o Wash dishes promptly after using them.
- o Keep counters, sinks, tables and floors clean and clear of clutter and moisture.
- o Remove piles of boxes, newspapers and other potential hiding places for pests.
- o Keep rooms as dry as possible by removing standing water and water-damaged or wet materials.
- o Frequently vacuum carpeted areas.

• Food Preparation and Serving Areas

- o Store food and waste in containers that are inaccessible to pests.
- o Place screens on vents, windows, and floor drains to prevent pests from using unscreened ducts or vents as pathways.
- o Reduce the availability of food and water: remove food debris; clean all food crumbs or spilled liquids right away; fix dripping faucets and leaks; and dry out wet areas.
- o Clean food preparation equipment after use and remove grease accumulation from vents, ovens, and stoves.
- Use caulk or paint to seal cracks and crevices.

• Rooms and Areas with Extensive Plumbing

- o Repair leaks and correct other plumbing problems to deny pests access to water.
- o Clean floor drains, strainers, and grates.
- Seal pipe chases.
- o Keep plumbing areas dry.

 Store paper products or cardboard boxes away from moist areas and direct contact 2456 with the floor or the walls. 2457 2458 Maintenance Areas 2459 2460 o Ensure mops and buckets are clean, dry, and stored appropriately. o Allow eating only in designated areas. 2461 o Immediately place garbage in a trash can with a lid that closes securely, and 2462 remove trash daily. 2463 o Keep areas clean and as dry as possible. 2464

Tier 2: Key Elements for a Fundamental K-12 School Environmental Health Program

Schools that have completed at least half of the actions listed under Tier 1 will be prepared to implement the key elements necessary for a fundamental K-12 school environmental health program.

- <u>Establish a school IPM Program.</u> Key steps for implementing a successful IPM program include:
 - O Developing an official IPM policy statement. This statement acts as a guide in developing a specific IPM program and should cover pest identification, pesticide applications, and notification requirements. IPM policy statements should be kept in a commonly accessible location. For an example of an IPM policy, view the Los Angeles School District's IPM policy.
 - Designating pest management roles and responsibilities. Education and training in IPM practices should be provided.
 - o Setting specific pest management objectives for the school.
 - Setting action thresholds, or levels of pest populations/environmental conditions that require remedial action.
 - o Applying IPM strategies to control pests.
 - o Evaluating program results and keeping written records of all aspects of the program.
- Once all IPM strategies have been exhausted to control pests, use baits and traps before making a broad pesticide application.
- Follow these guidelines before applying pesticides:
 - o Carefully follow instructions on the label and only used the amount suggested.
 - o Store all pesticides in a secure area of the building.
 - o Do not use outdoor sprays and chemicals indoors.
 - o Dispose of leftover pesticides and pesticide containers properly.
 - o Do not transfer pesticides to other containers.
- When pest management services are necessary, the school should either contract with an IPM certified pest management professional or ensure that the facility management staff is licensed, trained, and able to implement IPM practices as their state requires.

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2501 2502 2503 2504	 Maintain records on pest management activities, including pesticide application date(s), location(s), and rate(s); copies of pesticide labels; Safety Data Sheets (SDSs); and notifications issued.
2505	Tier 3: Enhance a School's Pre-Existing Program
2506 2507	Schools that have taken steps to implement a fundamental K-12 school environmental health program can build upon their pre-existing program(s) by considering the following:
2508 2509 2510 2511	• Expand the school's IPM program to address outdoor areas including playgrounds, parking lots, athletic fields, loading docks, and trash dumpsters.
2512 2513 2514 2515	• Establish a procedure for monitoring pests and recording information in a pest sighting log. Use this log to identify whether pests have exceeded pre-determined levels before applying pesticides.
2516 2517 2518	 Develop and record a measure(s) specific to the school that will demonstrate improvement in pest management practices.
2519 2520	• Incorporate awareness of IPM principles into the students' curriculum.
2521 2522 2523	• Incorporate IPM information and updates into newsletters, school announcements and other outreach material.
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Additional Opportunities for Promoting Environmental Health in School Facilities

Sustainable K-12 school environmental health programs are important for maintaining safe, healthy, and long-lasting school facilities. Routine maintenance and well-designed upgrades and improvements can extend the life of a school building, improve the learning environment, and

generate cost savings through increased energy and resource efficiency.

This section presents general information that schools can utilize as they plan for and undertake major construction and renovation projects, as well as recommendations for improving classroom comfort (e.g., lighting, acoustics, ventilation, and temperature control) and becoming more energy and water efficient. For more specific guidelines and standards, refer to guidance and rating systems specifically developed for school design and construction, including:

"We learned that initially you can have lots of savings due to facilities modifications, etc., and utility bill analysis (huge savings of 100,000s of dollars). However, to have long term year-to-year sustainable results, you have to have behavior modification, good maintenance practices and culture change."

--Kentucky Energy Efficiency Program for Schools (KEEPS)

Learn more about the **KEEPS Program**.

- EPA Voluntary School Siting Guidelines
- ENERGY STAR for K-12 School Districts
- IAQ Design Tools for Schools
- US Green Building Council Center for Green Schools
- Collaborative for High Performance Schools

New Construction and Renovation Projects

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New construction and renovation projects are good opportunities for schools and school districts to address areas of concern identified under the five key components of the model program, as well as improve classroom comfort and become more energy and water efficient. Incorporating high-performance elements in school buildings can result in cost savings and demonstrate stewardship of taxpayer dollars. By adopting high performance practices, schools and school districts can lower their operating costs by up to 30 percent. Existing schools can save 25% of operating costs by implementing some basic efficiency measures, occupant education, and engagement programs.³⁵

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Funding New Construction and Renovation Projects

Many schools are concerned about the costs involved in undertaking new construction and renovation projects. The <u>EPA Healthy School Environment Resources Financing website</u> provides links to cost/benefit studies and financial resources that can help schools pay for improvements to their infrastructure.

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The following practices and actions should be considered during the design and planning phases for construction projects and building renovations:

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• Schedule construction and renovation activities while school is out of session and all occupants are off premises, or ensure that building occupants are temporarily relocated to prevent exposure to harmful chemicals, dust, and/or particulates.

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• Be familiar with procedures used by contractors for protecting occupants at each stage of the construction/renovation process (e.g., isolating and ventilating the work area), and any other safety precautions that will be taken.

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• Have contractors demonstrate that they have received all appropriate training and can produce all necessary certifications before work begins.

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• Carefully select the materials to be used in the school's construction and renovation projects. From an IAQ perspective, choose products that:

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o Require the use of the least toxic, low volatile organic compound (VOC), water-based adhesives and coatings constituents;

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Emit little or no odor;Are easy to clean and maintain; and

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o Are not susceptible to moisture damage that can foster mold growth.

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• Be aware of potential health effects and safe handling procedures for chemicals and products being used or installed in the school by contractors. Safety Data Sheets (SDSs) and other product literature are good resources.

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• Include entry mat systems in the design of the school building.

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- o Entry mat systems are critical in trapping soil, pollutants, and moisture that otherwise would spread into and throughout the building, as well as in reducing the cost to properly maintain the building.
- O The International Sanitary Supply Association reports that most of the dirt within a building is tracked in by shoes, and that 85% of this can be removed if entry mats are properly designed

and maintained.

- Install precipitation controls to keep the school building(s) dry.
 - Prevent rain and snow from causing moisture problems in buildings:
 - Install sloped roofs to reduce the risk of moisture damage over the life of the building;
 - Landscape around school buildings to create ground slopes to carry water away from the building;
 - Ensure exterior entries have sufficient overhang
 - to prevent rain or snow from collecting at the building's entrance, or being blown into the building; and
 - Prevent air intakes from collecting precipitation.
 - O During construction, keep building materials dry, especially those with moisture absorbing properties (e.g., wood, insulation, paper, and fabric) to prevent the growth of mold and bacteria. If moisture is present, mold will grow on virtually any material.
 - o Wet materials need to be allowed to dry as much as possible.
 - Cover dry materials with plastic to prevent rain damage, and
 - If resting on the ground, use spacers to allow air to circulate between the ground and the materials.
- Implement dust controls during new construction and renovation activities. In addition to the irritation that dust can cause, it can also contain contaminants, such as lead, that can be harmful to the health of students and school staff. EPA and the Department of Housing and Urban Development (HUD) have developed training for renovations to promote the use of lead-safe construction practices. EPA has also promulgated regulations governing renovation activities in "child-occupied facilities" designed to minimize exposure to lead-based paint hazards. For more information, visit EPA's Lead Renovation, Repair, and Painting website.

School Renovation & Repair

Renovation is one of the major causes of poor IAQ in schools, and is often conducted while the building is occupied. When planning and conducting renovations and repairs in schools, it is important to remember four potential causes of IAQ problems:

- 1. Demolition that releases toxic materials (e.g., <u>lead</u>, <u>asbestos</u>, or <u>mold</u>).
- 2. Construction dust and fumes.
- 3. Designs that interfere with ventilation.
- 4. Off-gassing from new building materials and products.

To learn more, visit <u>IAQ Tools for Schools</u> Renovation and Repair website.

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- Incorporate simple design features that can reduce the likelihood of pest problems.
 - o Eliminate potential places around the exterior of the school building where pests can hide or build nests.
 - Keep foundation walls free from open cracks.
 - Ensure glazing materials are free of cracks and holes.
 - o Ensure doors, windows, and other outside openings have tightly fitted screens of at least 16 mesh per inch.
 - o Ensure basement windows have rodent shields, storm windows, or other barriers.
 - o Ensure ventilation openings are covered with material such as perforated sheet metal plates, cast iron grills, or wire mesh.
 - Clear the under-floor space of all vegetation, organic material, and construction materials.
 - o Provide minimum mechanical methods for preventing the entry of rodents into school buildings, including:
 - Covering foundation wall vents with metal grills or plates;
 - Sealing openings in the foundation and exterior walls created for pipes, cables, and conduits;
 - Covering windows located within two feet of ground level with wire screens; and
 - Ensuring minimum clearance between doors and door jambs.
 - Ensure all joints, seams, penetrations, openings, and other sources of air leakage throughout the building envelope are caulked, gasketed, weather-stripped, wrapped, or otherwise sealed.
 - o Take steps to ensure the building is termite resistant, such as installing floor framing made of naturally-durable or preservative treated wood. 36
- When building or renovating a school, it is important to consider the location of the school and the needs of the surrounding community.
 - EPA's <u>Voluntary School Siting Guidelines</u> can help local school districts and their communities evaluate environmental factors to make the best possible school siting decisions.
 - EPA's <u>Smart Growth and Schools</u> website provides information and resources for applying smart growth principles to educational facility planning.
- The ENERGY STAR program offers <u>Energy Design Guidance</u> for new construction projects.
 - The guidance is a set of suggested actions for building owners and design professionals to establish energy efficiency goals and ensure that energy is addressed at all levels of a construction project.
 - o EPA encourages using the best practices highlighted in the guidance to design, construct and operate buildings that earn the ENERGY STAR.
- Use the ENERGY STAR <u>Building Upgrade Manual</u> to plan and implement building upgrades by following the five building upgrade stages: retrocommissioning; lighting;

- supplemental load reductions; air distribution systems; and heating and cooling systems.

 Chapter 10 focuses on K-12 school specific issues.
 - Design teams should use ENERGY STAR's <u>Target Finder</u> to set energy targets and receive an EPA energy performance score for projects during the design process. Energy targets account for how activities, people, and systems will affect energy use and enables the design team to make decisions that support the function and optimal energy efficiency of the school building(s). Projects that earn a score of 75 or higher are eligible for <u>Designed to Earn the ENERGY STAR</u> certification.
 - The Department of Energy (DOE) has developed the <u>National Best Practices Manual for Building High Performance Schools</u>, a resource for architects and engineers who are responsible for designing or retrofitting schools, and for the project managers who work for the design teams. The manual provides information on school design, building systems (e.g., lighting and electrical, mechanical and ventilation), day lighting, and resource efficient building materials, among other topics.
 - Incorporate water-efficient products into building design and renovation plans. EPA's WaterSense program makes it easy to find and select water efficient products and ensures consumer confidence in those products with a label backed by third party, independent testing and certification. Products bearing the WaterSense label:
 - Perform as well or better than their less efficient counterparts;
 - Are 20 percent more water efficient than average products in that category; and
 - Provide measurable water savings results.
 - Many local water utility programs offer rebates for water-efficient products. For a list of rebates, please visit the Rebate Finder on the WaterSense website.
 - When replacing drinking water fixtures, make sure the new equipment is <u>NSF</u> International Certified "lead-free."
 - Consider seeking third—party certification for incorporating high performance design features. Two recognized programs that emphasize building for high performance and better environmental health are <u>LEED for Schools</u> and the <u>Collaborative for High Performance Schools</u> (CHPS).
 - <u>LEED for Schools</u> is intended for use in the design and construction phases of a school building(s), and encourages project teams to use an integrated design approach from start to finish. Using this integrated approach, LEED promotes improved practices in:
 - Site selection and development;
 - Water and energy use;
 - Environmentally preferred materials, finishes, and furnishings;
 - Waste stream management;
 - IAQ and occupant comfort; and
 - Innovation in sustainable design and construction.

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To become LEED certified, projects must meet all prerequisites and a minimum number of points within the six areas listed above. The number of points earned determines the level of LEED certification the project receives.

- The <u>Collaborative for High Performance Schools</u> (CHPS) has developed a rating system specifically for schools. CHPS criteria for high performance schools cover seven main categories:
 - Leadership, Education, and Innovation;
 - Sustainable Sites:
 - Water:
 - Energy;
 - Climate:
 - Materials and Waste Management; and
 - Indoor Environmental Quality.

CHPS criteria are available for a select number of states: California, Colorado, Massachusetts, New York, the Northeast (New Hampshire, Rhode Island, Connecticut, Maine, and Vermont), Texas, Virginia, and Washington. Schools in these states can choose from two programs: CHPS Verified and CHPS Designed.

- CHPS Verified provides an independent review of projects in California, Colorado, Texas and Massachusetts using the CHPS criteria to assess their high performance status. Projects that meet minimum certification receive a CHPS plaque.
- <u>CHPS Designed</u> is a self-certification process for projects in California, Texas, New York, Washington and the Northeast. CHPS Designed projects receive a certificate and use of the CHPS Designed logo.

CHPS also offers the <u>CHPS Operations Report Card</u>. This program benchmarks the current performance of existing schools, provides a report card of results, and makes suggestions for improvement in five categories: energy efficiency, thermal comfort, visual comfort, IAQ, and acoustics.

Enhancing Classroom Comfort

Proper design, maintenance and operation of lighting systems, ventilation systems, thermal control systems, and acoustics have a significant impact on school building performance and occupant comfort. Environmental distractions (e.g., poor lighting, glare, poorly controlled temperature and humidity, and excessive ambient noise or poor acoustics) can affect the health, attention, and performance of students, faculty, and school staff. Existing schools, schools being renovated and new schools can be enhanced by including design elements that maximize comfort and safety and allow building users to focus on education.

Get Started

Conduct a walk-through of the school building to identify areas or rooms in greatest need for improvement. Specific building elements to look for include:

- Inefficient lighting (e.g., too dim or too much glare);
- Poor acoustics and noise control features; and
 - Poor and inefficient temperature control.

Although resources may not be available to address every issue encountered on the walk-through, simple actions can be taken to realize immediate improvements:

• Inspect ventilation systems to ensure they have the capability to provide a constant supply of air.³⁷

• Inform teachers of trouble spots throughout the school building and encourage them to be flexible, and plan lessons and activities accordingly (e.g., use a classroom with poor acoustics for a study hall, not a music room).

• Wash windows and/or skylights frequently to maintain adequate day lighting.³⁸

• Educate teachers, school staff, and students on steps they can take to properly use building systems, such as:

o using lighting systems appropriately;

keeping ventilation intakes clear;keeping windows closed when the HVAC system is on;

o removing obstructions from around heating and cooling equipment; and

o managing the HVAC system, in terms of temperature control, humidity, and ventilation.

2829 <u>Take Action</u>

As resources allow, adopt high performance design elements in classrooms and throughout the school building, beginning with specific rooms and areas identified in the school walk-through. Examples include:

• Install or upgrade to acoustical ceiling tiles, lined duct work, and HVAC systems with appropriately placed vents.³⁹

• Locate information on the school building's acoustics and find out if the acoustical quality meets Standard 12.60, "Acoustical Performance Criteria, Design Requirements, and Guidelines for Schools," of the American National Standards Institute (ANSI). Part 1 of the standard applies to classrooms in permanent school buildings, and Part 2 of the standard applies to relocatable classrooms and modular learning spaces.

- Design lighting systems based on task, school room configuration, building layout, and surface finishes. 40
 - Install new or upgrade existing lighting fixtures. Lighting upgrades can improve the school's energy efficiency, and removing old lighting fixtures might help keep the school free from contaminants, including PCBs. To learn more see Proper Maintenance, Removal, and Disposal of PCB-Containing Fluorescent Light Ballasts: A Guide for School Administrators and Maintenance Personnel.
 - Install easy-to-operate lighting controls and manual blinds or other window treatments to control excessive sunlight or glare.
 - Use paint with a matte finish to reduce excessive glare.
 - Inspect heating and cooling equipment quarterly and change filters per maintenance schedule. 41
 - Adopt <u>EPA's SunWise program</u> for school use, and to inform school infrastructure enhancements (e.g., sun-safe policies and shade structures).

Beyond the Basics

High performance schools go beyond the basic elements of providing good acoustics, thermal control, adequate ventilation, and optimal day lighting. Consider implementing the following activities and practices:

- To determine how high performance building upgrades are impacting the school, consider developing and recording a measure(s) that will demonstrate improvements toward becoming a high performance school.
- Integrate lessons on high performance design elements into the students' curriculum. Visit the US Green Building Council's <u>Center for Green Schools</u> website for more information.

Energy and Water Efficiency

State and tribes spend more on energy at schools than any other expense except personnel. Existing schools can achieve higher performance by targeting energy efficiency in school operations and maintenance, reducing energy bills by 5% to 20% even without significant capital investment. School districts can use the savings from lower energy bills to pay for building upgrades that enhance the health and quality of the students' learning environment.

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In addition to saving money, energy efficiency and conservation is important because consumption of nonrenewable fossil fuels impacts the environment by polluting the water and air. Using fossil fuel energy more efficiently avoids emissions from power plants, and can

SCHOOL DISTRICT HIGHLIGHT: Council Rock School District, Pennsylvania

Council Rock School District (CRSD), located in southeastern Pennsylvania, serves 12,000 students in 17 facilities, totaling 1.8 million square feet of floor space. The school district received ENERGY STAR Sustained Excellence recognition for its continued success in improving energy efficiency through its energy management policy, established in 2005. Key accomplishments include:

- Saving \$2.4 million in energy costs in 2009 alone, for a total of more than \$7.1 million in the past 4 years.
- Receiving ENERGY STAR Leaders recognition for reducing energy use across the district's building portfolio by 40% since 2005, becoming the first organization recognized by EPA for reaching this milestone.
- Earning ENERGY STAR Leaders Top Performer recognition for achieving a portfolio-wide energy performance score of 84 in 2009.
- Forming an Energy Management Benchmarking Committee to compare CRSD's performance with other high-performing districts, share activities across buildings, define best practices, and assess building performance based on those practices.
- Developing a 2009 action plan to share and implement best practices across buildings and improve the performance of lower performing, smaller buildings.
- Reducing its electricity use by over 34 million kWh and fossil fuel use by more than 150,000 MMBTU since 2005.
- Chartering the collaborative Energy Decisions Group where business and facilities
 administrators from surrounding school districts share best practices for energy management
 and develop more sophisticated energy procurement practices, such as participation in ENERGY
 STAR.

To learn more, visit the <u>Council Rock School District Case Study</u> on ENERGY STAR's website.

reduce the need to build new power plants.

Schools and school districts performing building upgrades should consider making their facilities more energy efficient at the same time. By improving energy performance and properly monitoring and maintaining energy-consuming systems, schools are often better prepared to improve their indoor environments. ENERGY STAR provides a wealth of resources for <u>K-12 school districts</u> interested in reducing their utility bills, improving their energy performance, receiving recognition, and educating their students. ENERGY STAR certified schools use 35% less energy than typical buildings and emit 35% less carbon dioxide.

Another way schools and school districts can save money and conserve resources is to become more water efficient. Schools use a tremendous amount of water every day in a variety of applications, including:

• Heating and cooling systems,

• Restrooms,

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- Drinking water fountains,
- Locker rooms,
 - Cafeterias.
 - Laboratories and classrooms, and
 - Outdoor playing fields and lawns.

Resources such as EPA's <u>WaterSense</u> program can help schools make more water efficient choices. <u>WaterSense</u> seeks to reduce water use and increase public awareness about water efficiency by offering an easy-to-identify label for water-efficient products that is backed by strict criteria and independent certification. By adopting and promoting water-efficient products, services, and practices, schools and school districts can greatly reduce annual water and energy costs, as well as help reduce the stress on natural resources.

Get Started

Conduct a walk-through of the school building to identify areas or rooms where energy and/or water efficiency upgrades can be made. Although resources may not be available to address every issue encountered on the walk-through, simple actions can be taken to realize immediate improvements:

- Understand the school district's energy and water efficiency policy/program goals.
 - o Interview school personnel responsible for energy and/or water use.
 - O Check the partner list on ENERGY STAR's <u>K-12 School Districts</u> website to determine if the school/school district is a partner in the ENERGY STAR program. If not, take steps to become an ENERGY STAR partner, and demonstrate the school's commitment to energy efficiency.
- Determine the school's energy and water use baseline using EPA's measurement and tracking tool, <u>Portfolio Manager</u>. Schools can also receive an ENERGY STAR energy performance score (on a 1-100 scale) that ranks their energy performance relative to similar buildings nationwide.
- Inspect the school's plumbing system regularly. Immediately repair plumbing problems and leaky toilets encountered during inspections.
- Landscape the school grounds using plants with low-water needs, and water only when necessary (preferably during cooler times of the day).
- Use a broom to clean walkways, driveways, and entrances rather than hosing off or using a blower to clean these areas.
- Operate and maintain all building systems (e.g., chillers, cooling towers, boilers, plumbing fixtures, cafeteria equipment) as efficiently as possible (based on the water use benchmarking results obtained in Portfolio Manager).

- Educate teachers, school staff and students on best practices for saving energy such as:
 - o Turn off lights and electronics when they are not being used.
 - o Keep vents clear.
 - o Don't leave doors open to the outside longer than necessary.

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Take Action

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As resources allow, adopt energy and water efficient technologies and practices throughout the school building, beginning with specific rooms and areas identified in the school walk-through. Examples include:

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- Use <u>Portfolio Manager</u> to track energy and water use, set goals, and measure progress. This tool allows a school to:
 - o Track multiple energy and water meters for each facility;
 - o Rate building energy performance against similar buildings nationwide;
 - o Track greenhouse gas emissions;
 - o Set investment priorities; and
 - Earn the ENERGY STAR. Schools earning an ENERGY STAR energy performance score of 75 or higher using <u>Portfolio Manager</u> may qualify for ENERGY STAR certification.

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Develop an energy management plan using <u>ENERGY STAR's Guidelines for Energy</u>
 <u>Management</u>. These guidelines can assist schools and school districts in improving their
 energy, environmental, and financial performance.

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 Develop a plan to replace pre-1979 fluorescent lighting to reap significant energy benefits and remove PCB-containing lighting ballasts from the school building(s). To learn more about PCBs in lighting fixtures, see Proper Maintenance, Removal, and Disposal of PCB-Containing Fluorescent Light Ballasts: A Guide for School Administrators and Maintenance Personnel.

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• Establish a summer and evening energy policy that minimizes the use of electricity and other forms of energy. The policy should:

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 Identify which rooms/areas of the school building(s) will be occupied and limit the use of lights and electricity accordingly.

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Establish appropriate temperature controls when the school building(s) is not occupied.
 Establish procedures for ensuring windows and doors are closed when

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• Develop a procurement policy that favors the purchase of ENERGY STAR labeled products (e.g., compact fluorescent lamps, kitchen/office equipment, and computers) and WaterSense labeled products (e.g., showerheads, toilets, and sink faucets).

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appropriate.

- Utilize the <u>Low Carbon IT Campaign</u>, which promotes low power "sleep" settings on computers and provides:
 - Free technical expertise on how to best activate the settings on the school's network;
 - o An estimate of the school's savings; and
 - An official certificate of recognition from EPA acknowledging the school's efforts.
 - Replace older equipment (e.g., dishwashers and washing machines) with energy-saving devices.
 - Install water saving devices wherever possible:
 - o Water aerators and automatic shut off devices on faucets.
 - Low flow shower heads and timer shut-off devices to reduce water use during showers.
 - o Toilet dams on older model toilets.
 - o Timers for outdoor sprinklers and irrigation systems.
 - Maximize natural vegetative cover on school grounds and maintain playing fields with drought-tolerant grasses.

Beyond the Basics

High performance schools go beyond conserving water and energy in their daily operations and maintenance. Consider implementing the following activities and practices:

- Develop and record a measure(s) specific to the school that will demonstrate improvements in energy and water efficiency. Examples include:
 - o Cost savings on electric, water, and gas invoices.
 - o Cost savings in purchasing paper products, light bulbs, and maintenance services for office equipment and other electronics.
 - o Cost savings through reduced water use by installing more water efficient equipment.
- Develop <u>energy</u> and <u>water use</u> lesson plans and familiarize students with best practices for saving <u>energy</u> and <u>water</u>. Lessons can be applied in science, math, environmental science, and other courses.
- Consider investing in <u>solar panels</u>, <u>green roofs</u>, and/or <u>rain barrels</u>. These options not only contribute to energy and water efficiency, but can be integrated into classroom curriculum as well.
- Incorporate energy and water efficiency information and updates into newsletters, school announcements, and other outreach material.

Additional Actions to Promote Environmentally Friendly School Facilities

Many high performing schools address the three Rs in their environmental health programming: reduce, reuse, and recycle. Consider implementing the following activities and practices:

- Provide recycling bins for plastic; office paper, newspaper and cardboard; aluminum and tin; and glass.
- Establish practices to minimize <u>food waste</u> from cafeteria food production.
- Implement a procurement policy that emphasizes purchasing school supplies and equipment made with recycled content materials (e.g., paper products, engine oil, paints).

Faculty and Staff Training

A successful K-12 school environmental health program relies on the active participation of all persons involved. From school administrators and teachers, to nurses and maintenance personnel, all faculty and school staff have a role in protecting the school's environmental health. As such, training is an effective way to ensure that faculty and school staff understand their roles and how they contribute to the success and sustainability of the program.

Training opportunities should be provided to faculty and school staff in advance of program implementation and should address all aspects of the K-12 school environmental health program, not just those areas that relate directly to the faculty and staff members' primary responsibilities. An integrated training curriculum should educate trainees on:

• The purpose of a K-12 school environmental health program;

• The components of the program;

 • The benefits for students, faculty, and school staff;

 Behavior change in the classroom (e.g., prohibiting cleaning products from home or using unauthorized and possibly toxic art materials); and

 • The policies and procedures currently in place that support the program.

 Refresher training should be offered annually to provide updates and reinforce the program's goals. Tying training opportunities to continuing education units for certification can be an incentive for faculty and school staff to participate.

The section below describes specific issues and topics that training activities should address for each of the five key components of a K-12 school environmental health program. Additional information and training material can be found on the following websites:

• Schools Chemical Cleanout Campaign (SC3)

 IAQ Tools for Schools Program
 Integrated Pest Management (IPM) in Schools

• ENERGY STAR for K-12 School Districts

Routine Cleaning and Maintenance

• Roles and responsibilities of program participants (including teachers, the health program coordinator, school staff, maintenance personnel and any other persons involved with implementation).

• Policies and procedures for effective cleaning and building maintenance.

 Purchasing and using less toxic cleaners, art supplies, and other materials
 Resources for school cleaning and maintenance practices

• Potential environmental health risks (e.g., allergens and irritants).

Prevent Mold and Moisture

- Roles and responsibilities of program participants (including teachers, the health program coordinator, school staff, maintenance personnel and any other persons involved with implementation).
 - Policies and procedures for preventing moisture and mold.
 - o Mold remediation in schools
- Potential environmental health risks (e.g., molds).

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Manage Chemicals and Environmental Contaminants

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- Roles and responsibilities of program participants (including teachers, the health program coordinator, school staff, maintenance personnel and any other persons involved with implementation).
- State and local purchasing, use, storage and disposal guidelines.
- Chemical management, hazards, safety practices, and other requirements for handling chemicals.
- The school's hazard communication plan and familiarizing faculty and school staff with the appropriate policies and procedures.
- Purchasing and using less toxic lab chemicals, art supplies, and other materials.
- Recognizing and treating injuries resulting from chemical exposures or accidents.
- How to properly use chemical safety and personal protection equipment.
- How to read a Safety Data Sheet (SDS), and where to locate SDSs in the school building.

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Maintain Good Ventilation

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- Roles and responsibilities of program participants (including teachers, the health program coordinator, school staff, maintenance personnel and any other persons involved with implementation).
- The benefits of good IAQ.
- Policies and procedures for maintaining HVAC systems, and ensuring that maintenance staff has the tools needed to keep the HVAC system in good condition.
 - o Heating, Ventilation, and Air-Conditioning (HVAC) Systems
- Awareness of indoor asthma triggers.
- Guidance for building IAQ.

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Control Pests and Reduce Pesticide Use

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- Roles and responsibilities of program participants (including teachers, the health program coordinator, school staff, maintenance personnel and any other persons involved with implementation).
- Policies and procedures for effective pesticide use.
 - o Pesticides: topical and chemical fact sheets
- Educating faculty and school staff about IPM in schools.
 - The risks of pesticide exposure.
- Guidance on IPM.

Student Curriculum

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In addition to faculty and school staff, students should be educated on all environmental health policies and procedures, and instructed on how they can contribute to sustaining a K-12 school environmental health program. Student involvement will enhance their understanding of the environmental health issues that affect them, and will give them a sense of ownership and accountability in the ultimate success of the program.

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3171 3172 Environmental health projects can easily be incorporated into appropriate lesson plans (e.g., science and health) that meet state learning standards. Teachers should receive approval from the school district, district curriculum and academic directors, and/or the school principal for their new curricula before introducing it in the classroom, and should consider pilot testing the curricula before launching it on a wider scale.

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In addition to adopting an environmental health curriculum, schools should encourage students to engage in extra-curricular activities that relate to the environment and/or environmental health, and in volunteer opportunities that promote environmental stewardship. Additional information and course material can be found on the following websites:

Green Education Foundation

The Green Education Foundation (GEF) is a non-

profit organization committed to creating a

sustainable future through education. GEF

provides curriculum and resources to K-12 students and teachers worldwide with the goal

of challenging youth to think holistically and

standards-based curricula with active

their critical thinking skills.

critically about global environmental, social, and

participation, acknowledging that children learn

best through hands-on activities that enhance

economic concerns and solutions. GEF couples

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- Schools Chemical Cleanout Campaign (SC3)
- IAQ Tools for Schools Program
- Integrated Pest Management (IPM) in Schools
- ENERGY STAR for K-12 School **Districts**
- USGBC LEED for Schools
- Green Education Foundation³
- Environmental Health Perspectives Science Education Program⁴

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Routine Cleaning and Maintenance

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• Educate students on the rules and behaviors for keeping the school

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• Encourage students to conduct research and science projects on dust and allergens.

3199 3200 • Create environmental health bulletin boards or other displays.

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Prevent Mold and Moisture

³ Reference to the Green Education Foundation does not constitute an endorsement by the EPA.

⁴ Reference to the Environmental Health Perspectives Science Education Program does not constitute an endorsement by the EPA.

- Educate students on the rules and behaviors for keeping the school dry.
 - Incorporate educational activities about moisture and mold.
- Encourage students to conduct research and science projects on moisture and mold.
 - Create environmental health bulletin boards or other displays.

Manage Chemicals and Environmental Contaminants

- Familiarize students with chemical safety equipment, procedures, and Safety Data Sheets (SDSs).
- Educate students on the proper handling, storage and disposal of chemicals.
- Encourage students to conduct research projects on the health impacts associated with exposure to environmental contaminants.
- Encourage students to test the water quality at different taps throughout the school building.
- Educate student on the importance of testing for lead in drinking water and incorporate appropriate lead testing methods into laboratory curriculum.
- Incorporate simple toxicology lessons into science and/or health classes to help students make safer product choices.
- Create chemical safety bulletin boards, posters, or other displays.

Maintain Good Ventilation

- Encourage students to conduct research and science projects on HVAC systems and good ventilation.
- Create environmental health bulletin boards or other displays.
- Develop lessons on IAQ and HVAC systems.

The National Education Association Health Information Network (NEAHIN) has created a series of <a href="https://health.com/hands-on/hands-

Control Pests and Reduce Pesticide Use

- Educate students on the rules and behaviors for sanitation, disposing waste, and storing food.
- Encourage students to conduct research and science projects on IPM.
 - Incorporate educational activities about pests and pest control.
 - Incorporate activity books on IPM into the curriculum.

Disclaimer for External Websites

Any NON-FEDERAL websites or web links included in this document are provided for informational purposes only. US EPA does not endorse any of these entities or their services. In addition, US EPA does not guarantee that any linked, external websites referenced in this document comply with section 508 (accessibility requirements) of the Rehabilitation Act.

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Routine Cleaning and Maintenance

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EPA lists all partners and products recognized under EPA's Design for the Environment (DfE) Safer Product Labeling Program. DfE commends these companies for their leadership in designing products that are good for their business and for the environment. DfE also works in partnership with industry, environmental groups, and academia to reduce risk to people and the environment by finding ways to prevent pollution. More recently, DfE has been helping consumers and industrial purchasers make wise choices by identifying safe and effective products.

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- EPA's Design for the Environment website
- 3258 EPA's Environmentally Preferable Purchasing: Cleaning
- 3259 EPA's Schools Chemical Cleanout Campaign green cleaning fact sheet

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- 3261 Illinois Green Cleaning Legislation: Public Act 095-0084
- 3262 New York's Green Cleaning Program website

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- The Collaborative for High Performance Schools (CHPS) Best Practices Manual for
- Maintenance and Operations: available for <u>download</u> on the CHPS website.
- 3266 Healthy Schools Campaign Green Clean Schools website
- National Clearinghouse for Educational Facilities: Resource List for School Cleaning and
- 3268 Maintenance Practices

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<u>Green Seal</u> is a non-profit organization that develops life-cycle based sustainability standards for products, services and companies and offers third party certification for those that meet the criteria in the standard.

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3275 3276 The European <u>Ecolabel</u> is a voluntary program that encourages businesses to market products and services that are kinder to the environment. Ecolabel criteria are based on life-cycle analyses of products and services, and the logo itself helps manufacturers, retailers, and service providers gain recognition for good standards.

3277 3278

3280 3281	Prevent Mold and Moisture
3282	EPA's Flood Cleanup website
3283	EPA's Molds and Moisture website
3284	EPA's Mold Remediation in Schools and Commercial Buildings website
3285	El A s Mold Remediation in Schools and Commercial Bundings website
3286	Manage Chemicals and Environmental Contaminants
3287	
3288	EPA's 3Ts for Reducing Lead in Drinking Water manual
3289	EPA's <u>Asbestos in Schools</u> website
3290	EPA's <u>Clean School Bus USA</u> website
3291	EPA's Community Action for a Renewed Environment (CARE) Program
3292	EPA's <u>Current Drinking Water Regulations</u> website
3293	EPA's Design for the Environment <u>Labeled Products and Partners</u>
3294	EPA's <u>Drinking Water in Schools and Child Care Facilities</u> website
3295	EPA's Environmentally Preferable Purchasing Program
3296	EPA fact sheet: <u>Lead in Drinking Water Coolers</u>
3297	EPA's Guidance and Tools for Drinking Water in Schools and Child Care Facilities website
3298	EPA Guidance on Assessing Outdoor Air Near Schools
3299	EPA Guidance on Testing Schools and Child Care Facilities for Lead in the Drinking Water
3300	EPA's <u>Hazardous Waste</u> website
3301	EPA's <u>Healthy School Environments</u> website
3302	EPA's <u>Healthy School Environment Resources</u> website
3303	EPA's IAQ Reference Guide Appendix G: Radon
3304	EPA's IAQ Tools for Schools Action Kit
3305	EPA's Lead in Paint, Dust and Soil website
3306	EPA's List of Drinking Water Contaminants and their Maximum Contaminant Levels (MCLs)
3307	EPA's Mercury website
3308	EPA's Mercury in Schools Case Studies
3309	EPA's National Clean Diesel Campaign website
3310	EPA's National Idle-Reduction Campaign website
3311	EPA's National Primary Drinking Water Regulations website
3312	EPA's <u>PCBs</u> website
3313	EPA's Pollution Prevention Program—Schools website
3314	EPA's Proper Maintenance, Removal, and Disposal of PCB-Containing Fluorescent Light
3315	Ballasts: A Guide for School Administrators and Maintenance Personnel
3316	EPA's Radon website
3317	EPA's Radon in Schools website
3318	EPA's Reduce Exposure to Tobacco Smoke website
3319	EPA's Schools Chemical Cleanout Campaign website
3320	EPA's Schools Chemical Cleanout Campaign (SC3) Toolkit
3321	EPA's Schools Chemical Cleanout Campaign Workbook: Building Successful Programs to
3322	Address Chemical Risks in Schools
3323	EPA's <u>Smoke-Free Homes</u> website
3324	
3325	AIRNow School Flag Program website

3326	Air Quality Index and AIRNow web site
3327	ATSDR's ToxFAQs: Hazardous Substance Fact Sheets
3328	CPSC/NIOSH School Chemistry Laboratory Guide
3329	NIOSH Hazardous Waste Self-Inspection Checklist for Schools
3330	WOSTI Hazardous Waste Self-Hispection enceknst for Schools
3331	Colorado regulations for inventory of laboratory chemicals: <i>RULES AND REGULATIONS</i>
3332	GOVERNING SCHOOLS IN THE STATE OF COLORADO 6 CCR 1010-6.
3333	King County, Washington Local Hazardous Waste Management Program: Resources for School
3334	King County, Washington Local Hazardous Waste Management Program: School Chemical List
3335	King County, Washington Rehab the Lab: Less Toxic Chemistry Labs
3336	Maryland Science Safety Manual: Chemicals: Managing, Handling, and Disposing
3337	Nebraska Department of Environmental Quality: School Chemicals and Disposal Guidance
3338	
3339	National Clearinghouse for Educational Facilities: Resource List for School Cleaning and
3340	Maintenance Practices
3341	A TAMES TAUGUES
3342	Maintain Good Ventilation
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3344	EPA's Asthma Webpage: Asthma Triggers EPA Covidence for Indeed Air Overline in Indeed Parilline
3345	EPA Guidance for Indoor Air Quality in Large Buildings
3346	EPA's IAQ Tools for Schools website
3347	EPA's IAQ Tools for Schools Action Kit
3348	EPA's IAQ Tools for Schools Benefits of Good IAQ website
3349	EPA's IAQ Tools for Schools HVAC Systems website
3350	EPA's IAQ Tools for Schools <u>SAVES</u> website
3351	
3352	Lakota School District Facilities Upgrade Case Study
3353	
3354	ASHRAE Standard 62.1-2010: Ventilation for Acceptable Indoor Air Quality
3355	National Education Association Health Information Network (NEAHIN): <u>K-12 IAQ Lesson</u>
3356	<u>Plans</u>
3357	
3358	Control Pests and Reduce Pesticide Use
3359	
3360	EPA's Integrated Pest Management (IPM) in Schools website
3361	EPA's Integrated Pest Management (IPM) for Schools: A How-to Manual
3362	EPA's Pesticides website: A Backyard Activity Book for Kids on Integrated Pest Management
3363	EPA's Pesticides website: Children are at Greater Risk from Pesticide Exposure
3364	EPA's Pesticides website: <u>Information for Kids, Students, and Teachers</u>
3365	EPA's Pesticides website: Topical and Chemical Fact Sheets
3366	
3367	California's School IPM website
3368	Florida's School IPM website
3369	Los Angeles Unified School District's Integrated Pest Management Policy
3370	Monroe County, Indiana School IPM Model
3371	Texas A&M School Integrated Pest Management website

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3373	New Construction and Renovation
3374	
3375	EPA's Healthy School Environment Resources Financing website
3376	EPA's IAQ Design Tools for Schools website
3377	EPA's IAQ Tools for Schools Renovation and Repair website
3378	EPA's Lead Renovation, Repair, and Painting website
3379	EPA's Smart Growth and Schools
3380	EPA's Voluntary School Siting Guidelines
3381	EPA's WaterSense Label
3382	EPA's WaterSense Labeled Products
3383	EPA's WaterSense Program website
3384	EPA's WaterSense Rebate Finder
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3386	ENERGY STAR's Energy Design Guidance
3387	ENERGY STAR's Building Upgrade Manual
3388	ENERGY STAR's Target Finder
3389	ENERGY STAR's Designed to Earn the ENERGY STAR
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3391	U.S. Department of Energy's National Best Practices Manual for Building High Performance
3392	Schools
3393	US Green Building Council - Center for Green Schools
3394	US Green Building Council – LEED for Schools
3395	Collaborative for High Performance Schools website
3396	Collaborative for High Performance Schools – CHPS Designed
3397	Collaborative for High Performance Schools - CHPS Operations Report Card
3398	Collaborative for High Performance Schools – CHPS Verified
3399	Condobilative for riight enormance schools – <u>entry vernicu</u>
3400	The Alliance for Healthy Homes: Provisions found in model codes that address pest prevention
3401	and control
3402	National Green Schools Coalition
3403	NSF International Low Lead Plumbing Products Guide
3404	1131 International Low Lead I Infloring I Todates Guide
	Enhanging Classroom Comfort
3405	Enhancing Classroom Comfort
3406	EDA's Danson Maintaine Demonstrated Discount of DCD Containing Electronic Links
3407	EPA's Proper Maintenance, Removal, and Disposal of PCB-Containing Fluorescent Light
3408	Ballasts: A Guide for School Administrators and Maintenance Personnel
3409	EPA's <u>SunWise Program</u> website
3410	
3411	U.S. Green Building Council - Center for Green Schools: What Makes a School Green?
3412	
3413	Standard 12.60, "Acoustical Performance Criteria, Design Requirements, and Guidelines for
3414	Schools," of the American National Standards Institute (ANSI) Part 1: Permanent Schools
3415	Standard 12.60, "Acoustical Performance Criteria, Design Requirements, and Guidelines for
3416	Schools," of the American National Standards Institute (ANSI) Part 2: Relocatable Classrooms
3417	

3418	Energy and Water Efficiency
3419 3420	EPA's Green Roofs website
3421	EPA's Proper Maintenance, Removal, and Disposal of PCB-Containing Fluorescent Light
3422	Ballasts: A Guide for School Administrators and Maintenance Personnel
3423	EPA Region 1's Solar Power website
3424	EPA Region 3's Rain Barrels website
3425	EPA's WaterSense Educational Materials
3426	EPA's WaterSense Kids Webpage
3427	EPA's WaterSense Program website
3428	
3429	The ENERGY STAR information for <u>purchasing and procurement</u> is designed to assist
3430	procurement officials in smart purchasing decisions. Read about how the United States Air Force
3431	implemented ENERGY STAR purchasing and other measures to save \$15 million annually.
3432	Review other <u>case studies</u> and the key benefits of purchasing ENERGY STAR-qualified
3433	products.
3434	
3435	Energy Efficiency and Indoor Air Quality in Schools: A joint EPA working paper from
3436	ENERGY STAR and Indoor Air Quality (September 2003)
3437	ENERGY STAR for K-12 School Districts website
3438	ENERGY STAR's Guidelines for Energy Management
3439	ENERGY STAR Kids Webpage
3440	ENERGY STAR Low Carbon IT Campaign
3441	ENERGY STAR Portfolio Manager: An Overview
3442	
3443	Department of Energy's Energy Efficiency and Renewable Energy: K-12 Lesson Plans and
3444	Activities
3445	Department of Energy EnergySmart Schools: <u>Guide to Operating and Maintaining EnergySmart</u>
3446	Schools
3447	
3448	Council Rock School District Case Study (Pennsylvania)
3449	
3450	Alliance for Water Efficiency: Promoting the Efficient and Sustainable Use of Water/Schools K-
3451	12 Introduction
3452	
3453	Other Resources
3454	
3455	EPA's Food Waste website
3456	Key Federal EPA Regulations for K-12 Schools
3457	
3458	CDC's Coordinated School Health website
3459	<u>USDA Cooperative Extension Offices</u> are good resources for educational materials
3460	
3461	Kentucky Energy Efficiency Programs for Schools (KEEPS)
3462	New Hampshire Partners for Healthy Schools website

3463	
3464	Campus Environmental Resource Center (Campus ERC) is a library of resources that support
3465	campus environmental performance improvement and help visitors better understand
3466	environmental regulations. Although Campus ERC is designed for use by colleges and
3467	universities, K-12 school districts may find some of its resources helpful.
3468	
3469	The Green Education Foundation provides curriculum and resources to K-12 students and
3470 3471	teachers.
3472	The Environmental Health Perspectives Science Education Program promotes environmental
3473	health literacy, using the scientific literature to teach students the principles of environmental
3474	health science.
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3496	Appendix B
3497	K-12 School Environmental Health Programs Frequently Asked Questions
3498 3499	riequently Askeu Questions
3500 3501	Why is EPA developing state school environmental health program guidelines?
3502	The U.S. Environmental Protection Agency (EPA)'s mission is to protect human health and the
3503	environment. In December 2007, Congress enacted the Energy Independence and Security Act
3504	(EISA). Subtitle E, Section 504 of EISA requires the EPA, in consultation with the Department
3505	of Education, the Department of Energy (DOE), the Centers for Disease Control and Prevention
3506	(CDC), the Agency for Toxic Substances and Disease Registry (ATSDR), and the U.S.
3507	Department of Agriculture (USDA), to develop voluntary guidelines to assist states in
3508	establishing and implementing environmental health programs in K-12 schools.
3509	What do the guidelines cover?
3303	What do the guidelines cover:
3510	These guidelines recommend six steps that states and tribes can take to establish key partnerships
3511	to maximize resources and develop and sustain a successful state or tribal K-12 school
3512	environmental health program. The guidelines summarize cost savings and health benefits
3513	associated with adopting a school environmental health program; highlight incentives for states
3514	and tribes to work with school districts to encourage the adoption of healthy school practices;
3515	and links to numerous resources to help states and tribes establish, implement, and sustain state
3516	and tribal K-12 school environmental health programs.
3517	Do the guidelines establish benchmarks to assess the progress of schools, or recommend
3518	specific actions and policies?
3519	No, the guidelines outline general actions that states and tribes can take to implement and sustain
3520	a state or tribal K-12 school environmental health program. Every state and tribe is unique; each
3521	will encounter different environmental health issues, types and levels of resources, and decision-
3522	making structures. Specific benchmarks, actions, and policies will vary for each state and tribe
3523	based on the agencies involved, available resources, and existing policies.

3524	Why aren't health risks such as traffic flow on school grounds, healthy food and food		
3525	handling, or chemicals in building structures covered in the guidelines?		
3526	The guidelines focus primarily on the indoor environment and address environmental health		
3527	impacts with respect to school facilities as outlined by EISA, Subtitle E, Section 504.		
3528	Information on steps that schools and school districts can take to address additional children's		
3529	health risks can be found in Appendix A: Model K-12 School Environmental Health Program		
3530	and on EPA's <u>Healthy School Environments</u> website.		
3531	How can the guidelines help schools and school districts that have already adopted EPA's		
3532	Indoor Air Quality (IAQ) Tools for School program or CDC's Coordinated School Health		
3533	(CSH) strategy?		
3534	The guidelines build upon the foundation established by federal programs such as EPA's IAQ		
3535	Tools for Schools program and CDC's Coordinated School Health (CSH) strategy to supply		
3536	states and tribes with additional tools to create a comprehensive state or tribal program. For		
3537	example, the guidelines provide resources for states and tribes to address additional school		
3538	environmental health issues, including contaminants in drinking water; natural day lighting; and		
3539	acoustics. The guidelines serve as a comprehensive resource for states and tribes on the		
3540	development of a state or tribal K-12 school environmental health program.		
3541	How do the guidelines relate to other federal programs like the U.S Department of		
3542	Education's Green Ribbon Schools Program?		
3543	EPA developed the guidelines in consultation with the Department of Education, the Department		
3544	of Energy (DOE), the Centers for Disease Control and Prevention (CDC), the Agency for Toxic		
3545	Substances and Disease Registry (ATSDR), and the U.S. Department of Agriculture (USDA) to		
3546	enhance collaboration across federal school environmental health initiatives. The guidelines		
3547	identify opportunities for states and tribes to leverage resources from multiple federal agencies to		
3548	enhance state and tribal K-12 school environmental health programs.		
3549	EPA stresses life stages as related to environmental health risks. Why don't the guidelines		
3550	differentiate between exposures to kindergarten students vs. high school students?		

Although environmental exposures and health risks may vary among students at different life stages, all students deserve a healthy environment in which to learn and play. By following the recommendations in the guidelines, states and tribes can help provide a safe and healthy school environment for all students.

Do the guidelines apply to preschool facilities, day care centers and other child care facilities/learning centers?

The guidelines are primarily intended to be used as a resource for states and tribes in the establishment of a state or tribal K-12 school environmental health program. The practices recommended within the guidelines may be applied, with appropriate adaptation, to a wide range of school related institutions, including child care facilities. EPA believes the recommendations in the guidelines represent a set of best practices for a wide range of settings where children spend time.

Will EPA offer any funding for states and tribes to implement the guidelines?

In 2012, EPA intends to make a limited funding opportunity available to states and tribes to support implementation of healthy schools programs as outlined in the guidelines. In addition, the guidelines demonstrate how every state and tribe can take steps to improve the school environment, and ensure that students and school staff have healthy places to learn, work and play. While states, tribes, and school districts today face many financial challenges, modest investments in improving school environments can yield cost savings and generate additional resources.

3576		Appendix C
3577		K-12 School Environmental Health Programs
3578		Acronyms
3579		·
3580	ANSI:	American National Standards Institute
3581	ASHRAE:	American Society of Heating, Refrigerating, and Air Conditioning Engineers
3582	ATSDR:	Agency for Toxic Substances and Disease Registry
3583	CARE:	Community Action for a Renewed Environment
3584	CCHS:	Colorado Connections for Healthy Schools
3585	CDC:	Centers for Disease Control and Prevention
3586	CHPS:	Collaborative for High Performance Schools
3587	CPSC:	Consumer Product Safety Commission
3588	CSH:	Coordinated School Health
3589	CSIERT:	Connecticut School Indoor Environment Resource Team
3590	DfE:	Design for the Environment
3591	DOE:	Department of Energy
3592	EISA:	Energy Independence and Security Act of 2007
3593	EPA:	Environmental Protection Agency
3594	GEF:	Green Education Foundation
3595	HUD:	Department of Housing and Urban Development
3596	HVAC:	Heating, ventilation, and air conditioning
3597	IAQ:	Indoor air quality
3598	IPM:	Integrated pest management
3599	KEEPS:	Kentucky Energy Efficiency Program for Schools
3600	LEA:	Local education authority
3601	LEED:	Leadership in Energy and Environmental Design
3602	MCL:	Maximum contaminant level
3603	NEAHIN:	National Education Association Health Information Network
3604	NIOSH:	National Institute for Occupational Safety and Health
3605	PCBs:	Polychlorinated Biphenyls
3606	PEHSU:	Pediatric Environmental Health Specialty Units
3607	PWS:	Public water system
3608	SAVES:	School Advanced Ventilation Engineering Software
3609	SC3:	Schools Chemical Cleanout Campaign
3610	SDS:	Safety Data Sheets
3611	SDWA:	Safe Drinking Water Act
3612	USDA:	United States Department of Agriculture
3613	USGBC:	U.S. Green Building Council
3614	VOC:	Volatile organic compound

3616 Endnotes

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